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☞ The *Mechanical Engineering* department of this paper will be under the charge of Mr. ZERAH COLBURN.

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American Railroad Journal.

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Saturday, April 1, 1854.

Blue Ridge Railroad.

Pendleton, S. C., March 21st, 1824.

Editor R. R. Journal.

It may be interesting to your readers to know something in reference to the Blue Ridge Railroad of South Carolina. It commences at *Anderson*, S. C., where it intersects the Columbia and Greenville Railroad (leading to Charleston) and terminates at *Knoxville*, Tenn. The line of road leads through a country unsurpassed for agricultural and mineral wealth, and opens to the ocean an outlet for a rich though land-locked country. It opens a new outlet for the mighty West, and developes a section of country of great fertility and richness. The following table of distances indicate, in a measure, the relative importance of this road to the West, in affording itan Atlantic outlet for its produce.

From Cincinnati to New York	800	miles.
" " " Philadelphia	755	"
" " " Baltimore	740	"
" " " Richmond and Norfolk	735	"
" " " Charleston	644	"

Cincinnati is a starting point at the North, least favorable to Charleston. The distances above enumerated are to the sea at each of these ports.

	To Cairo.	To St. Louis.
From New York	1,150	1,180
" Philadelphia	1,005	1,035
" Baltimore	930	960
" Norfolk	1,050	1,080
" Charleston	797	897

It will be seen by the above tables, that Charleston may become the great entrepot for western produce moving *seaward* by virtue of having the shortest and cheapest line.

The Blue Ridge Railroad Company have ample cash means to construct their road. The following subscriptions have been secured, although the citizens of Charleston, who are so deeply interested in the success of the road have not yet been called upon to subscribe.

Tennessee, State, County and private subscription $1,500,000. City of Charleston $1,049,000. State of South Carolina $1,250,000. Private subscription in the State $200,000. Total $3,999,000. This road will ultimately be continued to Aiken, S. C., where it will intersect with the South Carolina Railroad forming nearly a direct line from Cincinnati, O., Louisville, Ky., and Knoxville, Tenn., to Charleston. From Clayton Geo, a point on the Blue Ridge Road, a line is projected to Atlanta, where it will intersect with the Montgomery and La Grange Railroad, forming nearly a direct line from Cincinnati, and Louisville, to Mobile, New Orleans and the Gulf Ports. New York will be vastly benefitted by this connection as it will afford it the most direct line to Mobile, New Orleans and Southern Cities, via Richmond, Va., Salisbury, N. C., Chesterville, Newberry, Anderson, S. C., Clayton and Atlantic Geo.

The vast importance of the Blue Ridge Railroad, as a connecting link, and as a means of developement of the immense wealth of the southern and western country, may be readily inferred by consulting its locality. Every branch of southern and western trade will be augmented, internal improvements will receive a great impetus, and Charleston, now deprived of the commerce to which her locality entitles her, will become the great depot for southern and western trade.

A. B.

The Economy of Railroads, as Affected by the Adaptation of Locomotive Power—Addressed to the Railroad Interests of New England.

BY ZERAH COLBURN,
Mechanical Engineer.

Introduction.

As a mechanical expedient, railroads were adopted to *reduce* the power required for locomotion. If they could be worked *without any power*, the cost of transportation would be no more than would pay the interest on the permanent investment, and the cost of attendance. The permanent investment, or first cost of a railroad, is often made very great to enable it to be operated with a moderate expenditure of power, and this policy of construction is sometimes adopted where prior investments have been made with less reference to the economy of power.

Had the original roads been built, both in alignment and in grade, on air lines, there could be no excuse for competing roads. As the case stands, however, many important roads, built at great cost, are threatened with competition. The pretext for competition, is, that the original road does not accommodate the business; being incapacitated either by sinuous route, and consequently, increased distance; or by severe undulations, involving an unproductive expenditure of power.

Before such considerations should operate against a road already built, such road should possess the best application of power, such as would overcome its natural obstacles in the cheapest manner.

The object of the present essay is to make a comparison between the different systems of motive power, in use on New England and on other railroads; to exhibit the principles which govern the economical application of power, and to suggest means, which, without change of route or hazard of income, will en able the leading New England roads to reduce, very much, the cost of the principal branch of their transportation.

The author is well aware that the strongest prejudices exist against *any* important change in the working machinery of New England roads; but while he will endeavor to disarm *prejudice* by *argument*, he will feel bound to accord proper respect to the experience of New England Mana-

gers. Massachusetts, especially, has been foremost in the introduction and extension of railroads, and at the present moment, by participation or example, controls a large share of railroad operations throughout the country. But while this experience will receive due respect, its character will be analysed, and a proper distinction made between that of a mercantile and other of an engineering nature. In the mechanical engineering of railroads, especially the admissions of those, who, by position, should control that department, exhibit a singular disregard of its importance. They have practically assumed that the railroad system was *perfected*, and nearly cotemporary with its introduction.

This assumption has necessarily prevented development, while, in the meantime, other channels, offering better facilities, have drawn away the immense foreign business, for whose control many of the New England roads have been built.

The object of New England capitalists, to participate in the western trade, is indicated in the active competition which has prevailed in the construction and management of the works already built, and in the appearance of a new project, involving great cost, and an engineering undertaking of doubtful character, to accomplish the end set forth.

To develope the capacity of existing roads is a very interesting problem, and its achievement will reduce the cost of movement, thereby leaving the door open for low fares, the surest preventative of competition. Beyond the direct advantages thus secured to railroads, new facilities and encouragements would be given to trade, perhaps sufficient to engage the attention of the commercial interests, for whose advancement the railroad system of New England has assumed so complicated and expensive a character.

OBJECTS AND RESULTS OF RAILROADS.

There is often more difficulty in showing the *need* of an improvement than in effecting it. In cases where the means of improvement rest upon a known basis of action this is indeed very generally the case. Men who have perseveringly cherished brilliant schemes of usefulness have often failed to execute them, not from any inherent difficulty in the proposed means, but that they were not appreciated. The reason is simply that the popular mind can easier appreciate results than processes. This is so universally the case that but few of the great inventions which have marked the present age would have probably been in use had not the inventors themselves worked out and realized their own ideas.

In a case, therefore, where a person without professional reputation or monied influence, having never been known in connection with the construction, management or ownership of railroads, comes forward with a system for working them with greater economy than at present, it will require a strong argument on his part to "make out a case" of the necessity, even, of improvement.

I shall endeavor, nevertheless, to show that the railroad interests of New England sustain large and constant losses owing to an imperfect adaptation of locomotive power. I shall endeavor to account, from this fact, for the want of success of some of those roads, in doing any other than a local business; and shall notice the unsettled state of the public mind in Massachusetts with reference to her railroad connections with the West,—a feeling which is only that of dissatisfaction with the results afforded under the present system.

The object of an investment is a return. This may be either direct or indirect; direct in the form of a dividend, and indirect when the result is the improvement of real estate, or access to market for such commodities as would not otherwise pay a profit after transportation. The parties making the investment, however, are not the only ones in interest. All who furnish or receive the increased trade, or who participate in any way in any of the benefits conferred; or those who by their position feel entitled to receive benefit therefrom, are also interested in the result. The interest of the proprietors of a railway is high dividends, while of most others it is low fares. To harmonize these interests is a problem both in the construction and management of roads, requiring probably more skill in the latter respect than in the former. Where the proprietor's interests are made paramount to those of the public, the latter have a resource in the construction of competing works.

The early history of railroads has been generally prosperous. This fact has tended to avert reflection on the hazards of railway investments, and to supply capital faster than it could attract business. The results of overdoing are competition, division of profits, increase of tolls, and eventually a loss of capital. Many roads in New England, by their present position, are immediate illustrations of these results.

Railroads may be unprofitable from two causes. First, from a disproportion between the movement to be accommodated, and the permanent investment made for its accommodation; and second, a disproportion between the *cost* and the *charge* of movement.

If a railroad under prudent management fails to pay a fair profit after any considerable period of operation, the cost has clearly been too great, and if no part of it could have been saved it must, as an independent investment, have been premature and perhaps unwarranted altogether.

In cases, where the first named disproportion exists the second is almost sure to follow. If the annual gross earnings fall short of an ascertained per centage on the original cost of the work, then the operating expenses will be disproportionate to the whole receipts, thereby subjecting the capital expended to a double loss. This result follows by reason of the constant expenditure for taxes; for repairing the natural decay of certain portions of the work and of the equipment; for a considerable portion of ropairs of track and machinery due to running the engines and a portion of each train; for salaries; for a considerable portion of train expenses, and for other unavoidable charges which are independent, or nearly so, of the amount of business done.

The disproportion between movement and investment may come from too small a movement compared with the road, or from too many roads compared with the movement.

The second disproportion named, that existing between the cost and the charge of transportation, may come from doing the business at less than fair prices, either to sustain competition or to encourage the movement over the road. Or, it may come, with fair charges, from *an extravagant application of power*, or from any other wasteful system of expenditure.

It is from these reasons that railroads built where not needed are worked under a double disadvantage; as their expenses per ton or per passenger are greater from the causes named, while an inducement exists to put the charges below ordinary paying rates in order to attract a business.

Railroads are often projected, and frequently built, where no business exists proportionate to the investment; a prospective business being relied on. But such business, beyond a certain extent, involves an increased investment. The principal Massachusetts railroads have increased their cost largely by outlays for increased business. Where the increase of business has exceeded that of the construction account, the equilibrium of profit has been maintained by reduced charges, a result often made necessary through competition.

The tendency of railroad operations is to place these works on a level with other kinds of property. As the conditions involved in their construction and operation become known, money will not often be *hazarded* upon them, and such roads only as are needed will be built. Beyond a certain point, railroads, like other investments carried to a similar extent, cease to confer real benefits. The best and surest roads are those in new countries, where all existing business can be controlled, and where the roads become instrumental in developing new business. The poorest investments of this kind are in occupied districts, where competition has already reduced the profits, and a new work becomes a new competitor.

Admitting these conditions as sound, a *par* railroad investment in New England should earn from 12 to 15 per cent. gross, annually; about one-half of which should go to expenses. Experience furnishes aid in establishing fares and tariffs so as at the same time to attract business and to make it productive, while good management keeps down the expenses to a standard of about one-half. This standard of operating expenses, however, so often appealed to as necessary, depends upon the circumstance of the cost of operating, and the interest on the whole cost of a road being about the same. Any amount of gross earnings, which will more than pay the expense of operating and the common rate of interest on the property, can only be regularly maintained by the aid of adventitious circumstances, or by legislative protection. To *preserve* this result under ordinary circumstances, is, however, a delicate test of good management; and, if for long periods, of a general healthy sentiment in regard to railroads.

THE ABOVE GENERAL CONSIDERATIONS AS APPLIED TO MASSACHUSETTS RAILROADS.

In designating the situation of railroads, those which owe their projection and construction principally to Massachusetts capital and influence, and those whose objects are based upon the commercial and manufacturing movements within that State, will be included in the general title of Massachusetts railroads.

This State presents the most elaborate and complicated railroad system to be found in this country, and by capital and connection, has organized and controlled the railroad interest in several other States.

These roads have been principally made to se-

cure two objects, viz: the developement and accommodation of local traffic, and the participation in a foreign trade. The first was the primary object of the earlier roads. The coincidence of a portion of these lines with the direction of movement of the foreign business, caused their ultimate extension by other lines, having both of the above objects.

Many of these roads, the earlier ones especially, have passed through three different and distinctive periods of existence. The first was when, in their early operation, they had not yet secured a profitable business; when doubts of their value as investments, or of their capacity as channels of communication, were entertained. The Lowell road was built, principally, upon the encouragement of proprietors of land and water power, requiring for their productions, an access to market. The net income of this road was once estimated, upon the best means of information, at about one-sixth of what it has actually amounted to in later years.

The Concord Railroad, a link in the northern extension of the Boston and Lowell, was not for a long time commenced, even with the offer of a liberal bonus from proprietors of land and water power, lying upon its line.

The Boston and Worcester road, in its early history, was proposed to be leased at an annual rent of $15,000. The interest on its present cost would be nearly twenty times this sum.

The Western, Nashua and Lowell, and New Bedford roads, were only finished upon the strength derived from State aid.

The second period of existence was one of signal success. Many of the roads, having created a large business, and enjoying a temporary monopoly thereof, paid dividends beyond all previous expectation. Where Boston and Worcester stock had been at 65 per cent., by the commencement of the year 1846, it stood at 114. Boston and Maine, once at 50, sold at the same time at 111. Boston and Lowell, once at 82, had risen, in 1844, to 128. So of other roads; Boston and Providence sold, in 1846, at 111; Fitchburg, at 120; Concord, at 134½, and other railroad stocks at liberal premiums.

At the same time, while established roads were enjoying an enviable prosperity, other works of the same kind, then incompleted but promising to be of equal importance, were struggling against doubt and difficulty. The Western Railroad stock, once at 40 per cent., had risen, in 1846, to but 85 per cent., although since that time, while other railway property has depreciated, it has risen to above par, at but little below which standard it now remains.

The third, and present, stage of railway property in Massachusetts, is generally less profitable than it was in the intermediate stage of general success. Competition, both within and without the State, has divided the former business; while the natural increase of local business arising on each line, has required generally a proportionate increase of the permanent investment for its accommodation. The increase of business, so rapid for a considerable length of time, did not, at once, involve its corresponding expense. This fact was the result of the use of all of the original structures and equipments of these roads, and of the operation of the roads with a number of trains less, in proportion to the business, than formerly. As time showed the original establishment to be insufficient, increased cost, both for construction and operation, was incurred.

From the first, the projectors of these roads aimed at a return, direct in its nature and as substantial as would be expected from any legitimate business, not involved in unusual hazard. The public, generally, expected extraordinary returns. This expectation, after a certain period in the operation of railroads, became realized, and the certainty of similar and continuous results, became a popular sentiment; entertained as well by those who had only a general interest, as by others, who by investment, had a particular concern in its correctness. There were many men who took railroad stock to secure the construction of works likely to benefit their property; there were others, of ample resources, and of prominent public influence, who became identified with the system to aid in a public benefit, and especially to promote the prosperity of Boston, with which much of the general welfare of New England is connected. There were those, also, who, looked upon as *leading* men, took stock to inspire the confidence of *others*.

The new facilities afforded for the exchange of natural products, brought land, before unoccupied, into market, and attracted labor to make it productive. Investments followed in general business operations, in farming, lumbering, quarrying, brick making, tanning, and in other channels of industry. Manufactures, induced by the cheapness of transit of their raw material and finished productions, sought water power, cheap food, fuel and labor, in places comparatively remote. There was a wide and deep seated interest in railroads, extending, as must all the results of public conveniences, far beyond their immediate ownership.

To harmonize the interests of those who *supplied* and those who *used* the railroad facilities, was the problem which presented itself to the managers of the New England, as well as to any other, system of roads. "Extraordinary dividends" were to harmonize with "extraordinary facilities," and the result, of course, had to be a compromise between the two. It was the belief that both could be greatly increased that led to the great expansion of the system.

The results of the operations of this system have generally fell short of the early expectations. The roads *within Massachusetts* are earning, upon an average, hardly the interest upon their cost. And the extension of the system into New Hampshire and Vermont has been generally unprofitable, up to the present time.

The principal reason why railroads in the agricultural districts of New England have proved unproductive, when not sustained by ample business from connecting roads, is the great disproportion between the permanent investment and the movement of persons and property who avail of its accommodations. This disproportion has been the more strongly defined from the greater cost of many of the items of the construction of these roads, as compared with others nearer Boston, and built upon easier ground. In the item of graduation, masonry and bridging, this disproportion is enhanced against the interior roads. The following statement, comprising roads of each class, exhibits this fact:

Cost, per mile, of Graduation, Masonry and Bridging.

Boston & Lowell,	28	miles,	double track,	$15,186
Boston & Maine,	83	"	⅓ "	15,000
Boston & Worcst.	69	"	⅔ "	14,517
Western,	156	"	⅓ "	29,434
Fitchburg,	66	"	⅔ "	13,668
Cheshire,	54	"	single "	28,225
Vermont & Mass,	77	"	" "	21,565

The two single track roads, costing more per mile than any of the other roads named, excepting the Western, are the most unproductive of the whole.

The disproportion referred to must always fall heaviest on interior roads. First, because the population and surplus products upon their routes are comparatively sparse; and second, because of their increased distance from the common market, they cannot so well afford the charge for transportation. The average of individual wealth is lower than in the neighborhood of cities, and so is also the average value of the tonnage of surplus products. From the fact, too, that by the comparatively greater cost and diminished business of these roads, their passenger fares and freight tolls are also at a higher rate per mile, the movement is retarded in an increased proportion.

If efficient railroads could be built and operated at a cost corresponding with the business which they are destined to accommodate, the system could be widely extended. Were this principle developed to an extreme, remaining exact in such an application, a railroad could be built to *every man's door*. As it is, however, a large proportion of the expenses of the construction and operation of railroads, are in a measure independent of the business to be accommodated.

It seems to be well settled that no railroad can be built and put in working condition, in New England, for less than $25,000 per mile, while the average is much higher, probably above $45,000. To support this cost, with that of operating, every mile must furnish a business yielding a gross fare of at least $6,000 per annum. The movement, through a town six miles wide, must pay $36,000 a year; or, upon a general average, the road must become unprofitable.

Railroads, therefore, require a concentration of population and business for their support, and if a business, paying double the interest on the cost of the road, does not exist, nor cannot exist, upon the line of any road, such road must be worked at a loss.

These general considerations are given merely to account for the results developed in the operation of railroads in New England, and to show how entirely independent is the *movement* from the management. The exigency of a railroad must depend upon the amount of business to be done; the profit depends upon this issue and also upon the cost of *doing* the work.

The question of the exigency of a road is of more importance in its results than that of the cost of working, since the amount of business done affects the cost of operation.

The following table exhibits the cost of some of the leading roads in Massachusetts, together with the movement thereon during the official year of each, ending (with the different companies) at different times in the year 1853.

(P designates passengers and F tons of freight moved.)

Name of Road.	Length without branches.	Total Length.	Cost.	Cost per Mile.	Movement one mile for year 1853.	Movement for each mile of total length.	Movement each mile from other roads.	Movement each mile from own road. (Local.)	Movement per $1,000 of cost, per mile.
	Miles.	Miles.							
Western	156	156	$9,953,259	$63,803	P. 27,488,944	P. 176,211	106,708	69,503	P. 2,762
					F. 28,153,554	F. 180,471	134,190	46,281	F. 2,829
					55,642,498	356,682	240,898	115,784	5,591
Boston and Worcester	45	69	4,850,755	70,301	P. 24,700,512	P. 357,978	186,094	divided	P. 5,092
					F. 11,577,498	F. 167,790	186,958	on 45 miles.	F. 2,386
					36,278,010	525,768	373,052		7,478
Boston and Lowell	26	28	2,044,536	73,019	P. 9,576,208	P. 342,007	71,180	270,827	P. 4,685
					F. 7,542,574	F. 269,377	150,797	118,580	F. 3,690
					17,118,782	611,384	221,977	389,407	8,375
Boston and Maine	74	83	4,111,846	49,534	P. 27,426,685	P. 330,442	129,851	200,591	P. 6,675
					F. 8,066,170	F. 97,183	34,415	62,768	F. 1,963
					35,492,855	427,625	164,266	263,359	8,638
Boston and Providence	44	56	3,576,041	63,858	P. 11,150,038	P. 200,000	90,000	110,000	P. 3,135
					F. 4,712,754	F. 84,156	23,938	60,218	F. 1,319
					15,862,792	284,156	113,938	170,218	4,454
Fitchburg	51	68	3,716,870	54,660	P. 17,314,206	P. 254,621	98,704	155,917	P. 4,663
					F. 12,180,140	F. 179,120	119,477	59,643	F. 3,281
					29,494,346	433,741	218,181	215,560	7,944
Eastern	38	58	3,120,892	53,800	P. 14,710,581	P. 253,631	35,588	218,043	P. 4,714
					F. 2,774,307	F. 47,833	16,650	31,183	F. 889
					17,484,888	301,464	52,238	249,226	5,603
Cheshire	54	54	3,075,195	56,948	P. 4,492,813	P. 83,200	68,434	14,766	P. 1,462
					F. 8,748,987	F. 162,018	141,595	20,423	F. 2,848
					13,241,800	245,218	210,029	35,189	4,310
Vermont and Massachusetts	69	77	3,456,314	44,897	P. 2,801,939	P. 36,388	21,570	14,818	P. 810
					F. 2,138,869	F. 27,777	24,050	3,727	F. 619
					4,940.808	64,165	45,620	18,545	1,429
Connecticut River	50	52	1,802,245	34,659	P. 4,361,426	P. 58,152		The whole	P. 1,676
		lease 23			F. 2,368,864	F. 31,585	divided upon 75 miles.	movement probably 125,000 for each mile of main road.	F. 911
		75			6,730,290	89,737			2,587
Fall River	42	42	1,050,000	25,000	P. 7,453,708	P. 117,470	164,587	12,933	P. 4,698
					F. 2,818,595	F. 67,109	58,110	8,999	F. 2,684
					10,272,303	244,579	222,647	21,932	7,382

The following roads may be taken in comparison with the foregoing.

Name of Road.	Total length in miles.	Cost up to the end of 1853.	Cost per mile.	Total movement one mile for year 1853.	Movement for each mile of total length.	Movement per $1000 of cost per mile.
New York and Erie	469	$31,222,834	$66,570	Pass. 98,432,361	Pass. 209,877	Pass. 3,151
				Frt. 101,626,522	Frt. 216,687	Frt. 3,254
				200,058,883	426,564	6,405
Baltimore and Ohio	380	20,708,028	54,495	Pass. 17,336,572	Pass. 45,623	Pass. 837
				Frt. 29,791,463	Frt. 78,399	Frt. 1,438
(Main stem only) opened throughout during the year.				Coal. 51,724,761	Coal. 136,118	Coal. 2,497
				98,852,796	260,140	4,772
All New York Railroads	2,432	117,707,621	48,400	Pass. 531,572,298	Pass. 218,574	Pass. 4,516
				Frt. 246,554,492	Frt. 101,380	Frt. 2,095
				778,126,790	319,954	6,611

The Reading Railroad had 242½ miles of single track at the close of 1852. Its nominal length is 96 miles. Cost $17,141,987 or $180,442 per mile. During the year 1853, 370,525,798 tons of passengers, general freight and coal, including cars, were carried one mile. Allowing one-half of this amount for weight of cars, (probably a little more than one-half) we have 185,262,899 tons and passengers one mile, or 1,950,136 for each mile of the road.

The "movement per $1000 of cost per mile," is the real test of the productiveness of railroad stocks. Yet this depends upon the *nature* of the movement, whether it be of property or persons; whether it be that of suburban residents, through

travellers, valuable freights, agricultural products, coal, or other assessable material. It is evident that these different sources of income are profitable in different degrees. Some travel, as well as some freight, will not *bear* high charges, so that the character of the movement upon a railroad must always be regarded in any estimation of revenue.

It may be said that the kind of freights carried on New England roads pays higher per ton than the single passenger for the same distance. While of the passenger business, those roads which enter the city of Boston generally have a large proportion of commutation travel at low rates.

Taking, however, the tonnage and travel upon the New England roads mentioned in the table, and averaging an indiscriminate charge equal to 12 per cent. on the cost of road, (6 per cent. being for operating and an equal per cent. for dividends,) we shall have the following result.

Name of Road.	Movement per $1000 of cost per mile.	Rate in cents per mile to pay $120 on $1000.
Western	5,591	2·14
Boston and Worcester	7,478	1·60
Boston and Lowell	8,375	1·43
Boston and Maine	8,638	1·39
Boston and Providence	4,454	2.69
Fitchburg	7,944	1·51
Eastern	5,603	2·14
Cheshire	4,310	2·78
Vermont and Mass.	1,429	8·39
Connecticut River	2,587	4·62
Fall River	7,382	1·62

By this scale of prices per ton and per passenger per mile, all of these roads, with good management, would pay 6 per cent. dividends, if all of them could retain their present movement. As it is, the paying roads get more than their rates, corresponding with their movement in the above table; the others get less.

It will be seen that the Boston and Maine should charge the lowest fares; the Boston and Lowell next: Fitchburg next; and Worcester and Fall River roads afterwards. The Cheshire requires fares just twice those of Boston and Maine; the Vermont and Massachusetts *six* times as much.

It will be seen, however, on looking in the table of cost and movement for the several roads, that the larger part of the movement upon the Western, Cheshire, Vermont and Massachusetts and Fitchburg roads is received from, or given to other roads. So that although the whole movement on a portion of these roads is large, but a small part is *local*. For all other business, originating on the western side of the Green Mountain range, these roads have sharp competitors in the New York railroad and water lines. The retention of the full amount of their present foreign movement will therefore depend upon the extent of their competition in reducing charges.

In New York, railroads must earn 13 per cent. gross, to pay an interest dividend, with the same operating expenses as in New England. Their ability to operate for six per cent. of cost of road will be discussed hereafter. With the present movement of the Erie road the charge per mile would be 2·03 cents, earning 13 per cent. on cost.

The Baltimore and Ohio road cannot be properly included in a comparison of the results of transportation with New England roads, as it was only opened throughout during its last official year; its departments not having had the necessary time to become fully organized; its expenses increased by items for which discrimination could hardly be made between operating and construction accounts; and it being even at the present time deficient in connections for its growing through business. Besides being without its proper connections, it has none of the commutation travel of which Boston roads can do so much on so little capital, and its heavy freights are such as must be transported for long distances, and as will bear at the best but low charges. Yet as I shall refer in frequent cases to the operating system of this road, I will not shrink to put its last year's business in comparison with that of eastern roads. This road, upon its last year's business, would have earned 12 per cent. gross, at charges of 1½ cents per ton per mile on coal, and 3·6 cents per ton of general freight and per passenger for the same distance.

The Reading Road to have earned 12 per cent. gross in 1852, would have charged 1·11 cts. per ton and per passenger per mile.

The relation between investment and movement is so directly involved in the subject of competing roads that a few words will be devoted in their consideration.

The movement upon a number of roads, all of which have been for several years in operation, has been shown. On many of these lines the movement is insufficient to pay interest and cost. Those lines which have been built to participate in foreign business, the western business especially, have failed of that object, while but few have been enabled to sustain themselves on local traffic. The Western Railroad has had the advantage of several years of operation. In its earlier history it was an unprofitable enterprise, but soon after, being in advance of any similar work built to carry trade to New York city, it received a heavy accession of business and afforded satisfactory returns. In the mean time, it had opportunities to increase its local trade; upon which, with its share of the through travel over the railroad line between the cities of New York and Boston, it now principally relies. Its western business, assailed by competition from without the State of Massachusetts, has fallen off to a very great extent.

Year.	1st Class. Pass.	2d Class. Pass.	Total. Pass.	Tons Freight going eastward.	Barrels of flour included in Tonnage.
1842	15,890	2,680½	18,570½	.....	85,986
1843	19,987	6,608	26,595	.....	123,366
1844	17,016½	7,314	24,330½	.....	154,413
1845	13,401½	5,791	19,192½	.....	181,796½
1846*	21,033	8,799½	29,832½	36,403	209,634
1847	23,678	10,621½	34,299½	88,488	518,851
1848	21,647	12,084	33,731	63,667	871,239
1849	20,440	13,311	33,751½	58,217	827,694
1850	23,575	11,744½	34,319	60,900	362,275
1851	23,074	10,897	33,971	47,057	267,073
1852	29,946	5,487	35,433	44,386	231,546
1853	31,804	6,363	38,167	59,018	264,474

* For 11 months.

The through business of passengers, both ways, and of freight going eastward for each year since 1842 is given in the company's reports as above.

It will be seen that more than one-half of the through tonnage eastward has been of *flour*; a species of freight which has avowedly been always carried, by an established policy of the company, without profit. AddisonGilmore's doctrine was to carry flour at rates that would starve off the coasters, and to make the deficiency good on other freight, generally local.

Had not the best portion of the Western Railroad been in use since 1849 for the through travel over the "land route," its earnings would probably now show a loss, when compared with those of former years. Giving it the most favorable view it cannot be said to have accomplished the great object for which it was built.

Hence, if outside competition has defeated the purpose of such an enterprise, what would internal rivalry accomplish in addition? Suppose a road to have an annual movement of persons and tons numbering 5,000 per $1000 of its cost, what would be gained by a competing line, of equal cost, if the whole movement were increased to 9000, or even if it were doubled. The *local* support of such a line, for instance, not being greater than that of the Vermont and Massachusetts road, which taxing the through business at the same rate, must receive six times what its facilities are worth to enable it, in the language of its President, "to earn a living."

I know very well what will be said of the "grades and curves" of the Western railroad, and it will be my purpose to examine the effect of grades and curves generally, and to show in what manner they are surmounted, in their worst aspects, on other roads which receive but one half the toll per mile for heavy freight now paid to the Western road. This examination will be continued in nearly every subsequent section of this essay.

There are always temptations to competition. Local feelings, sensitive to neglect; whole townships of unopened land, having perhaps but little to give when canvassed; commercial disappointment at "insufficient facilities," or perhaps a other times the jealousy of neighbor capitalists,—all tend to supply capital for railroads faster than they can attract business.

The Boston and Lowell Railroad even, with its capital of nearly two millions, raised up a rival in giving a single cause of individual dissatisfaction. The people of Lowell, by the result, have the command of two routes to Boston, with nearly double their former number of trains, and the introduction besides of the new feature of package tickets.

Of all railroad competition experience has shown that carried on in thinly settled or unproductive districts to be the most ruinous. The causes are obvious;

Fewer patrons for the use of the road;

Lower average of individual wealth;

Lower average value of surplus tonnage;

Increased distance to the common market;

Necessarily higher rates of fares and tolls per mile;

Abscence of commutation travel.

Comparative abscence of commercial inducements to travel, and often increased cost for construction.

The difficulty of attracting a large through business away from a short, safe and commodious water route, flanked also by railroads of easy grades and alignment, is another obstacle, sufficient to employ the energies of one road, now worked, as will be shown, far below its capacity; without employing a large additional investment to divide a lean business.

New Railroads in occupied districts, labor, to an extent, under greater disadvantages, *apart from competition*, than did the earlier roads. The original roads were opened, many of them, at a low cost, and could then command business at high rates of fare. With the increase of business their construction accounts have increased also, but not in equal ratio, the earnings, which at former rates would have overpaid the interest on the investment, having been regulated by lower fares. The cost and annual income of the Boston and Worcester road have both been trebled since 1840, while the movement of passengers and tonnage has increase nearly ten fold. The freight carried over this route in 1840 was 32,000 tons. In 1853 it had reached 309,715 tons. Hence, although the money value of the investment is no greater now then in earlier times, its *usefulness* has been greatly increased—that is, it affords accommodation, in proportion to its amount, to three times its former business.

The disadvantage sustained by a new road is that this proportion of usefulness is expected from it, before it has had time to create its business. In cost, it must approach that of first class works which have become first class only through the greatly increased support they have received. In compensation it must be affected by the example of older roads which have been enabled to do a great business at a comparatively low cost.

To be continued.

Syracuse and Binghamton Railroad.

Below we give a report prepared by Wm. H. Swift, Esq., Pres't of the Western Railroad of Massachusetts, formerly Pres. of the Philadelphia, Wilmington and Baltimore Railroad, in reference to the business capabilities of the Syracuse and Binghamton Railroad (addressed to a person interested in the same.) In all such matters, the opinion of no person in this country is entitled to greater consultation, nor will command more attention than that of Mr. Swift.

Report of William H. Swift, Esq., of Boston, upon the route, connections, resources and prospective income, of the Syracuse and Bighamton Railroad.

Dear Sir:—At your request, I have examined the Report made by W. B. Gilbert, Esq., the Chief Engineer of the Syracuse and Binghamton Railroad Company, (May 31, 1853,) and a communication of the President and Directors of said road to the stockholders, (Nov. 1, 1853.) I have seen also the Map and Profile of the line as located, and have conversed with Mr. Gilbert, the Engineer, and received from him such imformation and explanations in regard to said line as would enable me to understand, generally, the more important characteristics of it, as well as some of the details of the project.

A glance at the map of the United States will be sufficient to show, strikingly, the importance of this line of cummunication lying in a direction nearly North and South, it connects immediately, the three great avenues of the State of New York, running from East to West, viz.; the Erie Canal, the New York and Central Railroad, and New York and Erie Railroad, all extending from Lake Erie to the Hudson river. From Syracuse, by means of the Syracuse and Oswego Railway and the Syracuse and Oswego Canal, 36 miles, the line of the Syracuse and Bighamton Railway is extento Lake Ontario at the important town and harbor of Oswego, and at last named place, opening to the navigation of all the great Lakes in the West, to the Canadas, and to the River St. Lawerence.

At the southern extremitiy, Binghamton on the Susquehanna river, and the New York and Erie Railroad, the line forms a connection by means of the Delaware, Lackawanna and Western Railroad, (now opened to the coal fields,) with the great Lackawanna coal fields of Pennsylvania, near Scranton, some 60 miles from Binghamton, and thence either to New York, 125 miles, through the Delware Water-gap and by the Central Railway of New Jersey, or to Philadelphia 146 miles via the Water Gaps, Easton and Philadelphia Railway, thus, according to the Report of the Directors, effecting a saving of distance, as between Syracuse and NewYork, of 30 miles, and to Philadelphia of about 100 miles.

Another important feature in the position of the Syracuse and Binghampton Railway should not be overlooked. It forms the first communication, North and South, in passing westwardly the Hudson, to be found between the New York Central Railway and the New York and Erie, and by rather a striking coincidence, it intersects the former line about midway between Albany and Buffalo or Niagara Falls, and about midway also between the city of New York and Dunkirk on Lake Erie it strikes the Erie Railroad.

It will thus be seen that the line in question is remarkably well situated, geographically.

The Syracuse and Binghamton Rail Road is 80 miles in length, and in passing the summit which divides the waters flowing into Lake Ontario from those which fall into the Susquehanna River, it attains an elevation of 800 feet in the town of Tulley, distant from Syracuse 19 miles. This summit is approached from the North by gradients varying from 0 to 52.8 feet per mile.

The alignment of the road, in general is very good. After passing the summit, the line falls into the valley of the West branch of the Chenango river, and throughout this part of its course, some 30 miles or more, the route and character of the Line, both in its direction and the favorable nature of the ground for a railway, in the cuttings and fillings as represented in the profile, and the material for the Road bed, combine to constitute this portion of the line uncommonly good.

The curve of least radius (with the exception of one in the town of Syracuse) is 1910 feet, certainly very favorable.

The quantity of earth woork exceeds 2,700,000 cubic yards, of this there is some 80,000 cubic yards of excavation in rock.

The aggregate length of bridges upon the line is 1460 feet, of which there is but one which exceeds 88 feet span, viz: at the crossing of the Chenango river and the Chenango canal, at the same point, a few miles North of Binghanmton. This bridge is 500 feet in length and elevation 35 feet above the stream, but as the bottom is good, no unusual expense need be incurred in establishing the foundations. There will be 16 trussed framed bridges exclusive of the Chenango above described.

The guage of the Road is to be 6 feet, that being the established guage of all the roads with which it is to be connected, except the Syracuse and Oswego, and the New-York Central. The Syracuse and Oswego is of 4 feet 8½ inches, but this, the Directors think, will be modfied, and that no transhipment need take place between the Lake and the coal fields or points beyond; an object worthy the attenion of all parties concerned at an early day; a break of guage being a serious evil.

The first great article relied upon for business of the Road is coal from Pennsylvania. The first deposit of this invaluble mineral is found in the greatest abundance in the neighborhood of Scranton, some 60 miles South of the terminus of the line, Binghamton Coal is required at Syracuse in large quanties to supply the fuel needed for the extensive manufacture of salt carried on at that place and in its vicinity. It is wanted for the steam vessels and propellers navigating the lakes and the St. Lawrence; it is needed for domestic purposes, and finally it will be needed, at no distant day, for the use of locomotive engines on all our railways, the fuel now used exclusively for this last purpose becoming more scarce year, by year and consequently more expensive.

Merchandize from New-York, Philadelphia and Baltimore, and iron for foundry purposes as well as in its manufactured state, from Pennsylvania, constitutes the second large class of freight.

The returns from the North to the South will be salt, gypsum, lime, cement, flour; from Oswego, grain, cattle, timber, &c.

The estimate which the Directors make of the passengers business is somewhat vague, as all such estimates made before a line is opened must necessarily be, but the general experience in this country which has followed the opening of new lines of railway, lead to the conclusion that even the most sanguine expectations of well informed persons have been more than realized upon the opening of all the well situated lines of railway, not only in the more densely settled portion of the United States, New England and New-York, but in parts of the country more remote, and even where the population, as compared with New England and New-York, is very sparse; Illinois for example; even there the results of the large number of railways which have been constructed within the last two years have been encouraging to all.

In the case now under consideration there is a certain business already at hand, and one which has proved itself sufficient in the case of the Reading Railroad to bring in, unaided by the other business of the line, from one to two millions of dollars annually, and this upon a road of less than 100 miles in length.

With such an article of increased consumption as coal to start with, it is not unreasonable to suppose the Syracuse and Binghamton Road, with its important connections North and South, and its situation in a district of country so rich in soil, and so well covered with a population requiring the means of transportation for themselves and their productions, should ralize all that the projectors of the Road predict of it.

I have no means of verifying the estimates of the various kinds of business which is supposed by tho Directors will result from the opening of this road, nor does this appear to be necessary on my part. I have shown that one great article is alone sufficient to infuse vitality into the undertaking and of itself may furnish a large return on the capital employed in the construction of a very extensive line of railway, for example the Reading Railroad of less than 100 miles in length has cost more than $17,000,000, yet that road derived a gross revenue from its business for the year ending November 30th, 1853, of $2,688,287 of which, the earnings from the transportation of coal were (gross) $2,254,694. The working expenses of the whole line, including drawback on coal, for the same period, are stated at $1,222,537, leaving the sum of $1,465,750 applicable to interest on loans, renewals of road and machinery, and dividends on stock.

I have stated that I have no means of testing the estimate made by the Directors, of the general business which they suppose the line will receive, but I find at page 14 of the Report of the Directors, some statistics furnished by Mr. John Wilkinson and others of Syracuse. Mr. Wilkinson is well known as the former efficient President of the Utica and Syracuse Railroad, and is probably as well informed in these matters as any person to be found.

It may be well to show the extent of the population which it will be reasonable to suppose may have occasion to make use of the Syracuse and Binghampton Railway, between the lake and New-York and Erie Railroad. Oswego being the point on the lake which will become the coal mart for a very extensive district, including the Canada shore

as well as the American, it will not be improper to consider the Syracuse and Oswego Railroad 36 miles as an extension of the Syracuse and Binghamton Railway, and thus we shall properly include the population of the county of Oswego. This county, and the three counties through the middle of which the line of the Syracuse and Binghamton Road will pass, embrace all that we shall consider immediately dependent upon the railway for their own transportation, but even these four counties by themselves it will be seen present quite a large aggregate for 115 miles of Railroad.

The Census Tables of 1850 furnish the following results, viz:

	Population 1850.
Oswego County,	62,198
Onondaga "	85,890
Courtland "	25,140
Broome "	30,660
Aggregate,	203,888

Say for the 115 miles 1,770 souls for each mile of Railway: 1-6th of the entire population cannot be considered an over-estimate of the number which would probably become travellers upon the Road, or say 300 per mile.

The Road from Binghamton to the Coal field at Scranton, 50 miles, is completed and in use. The construction of the line from Scranton to the Water Gap, 52 miles, and thence to Hampton on the New Jersey Central line, 23 miles, is in progress, and it is represented that all that portion of the line will be completed before the close of the preseng year.

The Road from the Water Gap to Philadelphia is expected, as I am informed by Mr. Gilbert, to be completed about the time the other Road (to New York) is finished.

From Hampton, on the New Jersey Central, to New York, the Road is completed and in use.

The Syracuse and Binghamton Road is intended to be opened throughout in August, 1854.

ESTIMATE OF COST.

Mr. Gilbert, the Engineer of the Road, makes the following estimate of the entire cost:

Grading, masonry and bridging	$665,445 00
Superstructure, including iron	677,050 00
Land, land damages and fencing	176,000 00
Depot buildings	60,000 00
	$1,578,495 00
Road Furniture Equipment	230,600 00
	$1,809,095 00

Or for the whole $22,728 per mile.

This estimate, based as it is, I presume, upon prices actually paid for portions of the work, I must regard short so far as the ultimate cost of the road is to be considered. I mean by this the coast that may be reached say within two years after the line is first opened for use,

The equipment, I perceive, is stated by Mr. Gilbert in his estimate of the 31st May 1853, to be designed to supply the wants of the road for the first year only, and it may be that Mr. Gilbert intends it to be inferred that further expenditures for the road itself will be required after it shall have been in use one year.

My own experience in these matters has led me to become somwhat skeptical where estimates of cost of works of such magnitude as railways are concerned, and in practice, I have found it indispensable to accuracy, to make large allowances for various contingencies not specified in the estimates, because not foreseen. If such allowances be not made in time to meet probable wants, great embarrassment will sometimes be produced, and continued to the great annoyance of the managers of a road, and to the positive disadvantage of the proprietors.

Excluding the estimated cost of the equipment ($230,600) the sum $1,578,495 is left as the cost of the road and its fixtures, or at the rate of $19,780 per mile. This appears to me to be a low estimate for such a road as this must become even before it shall require a second track.

In the Official Report of the State Engineer of New York, for the year ending Sept. 30th, 1852, I find the following statement of the average cost of the principal items in 24 railways new and old, per mile of single track, including branches.

Graduation, masonry and bridging, per mile	$13,547 00
Superstructure, including iron	9,693 00
Lands and fencing	2,750 00
Station buildings, per mile	1,264 00
Shops and machinery	445 00
Engineering and agencies	1,028 00
Total per mile	$28,729 00

In the report of the State Engineer for the year ending September 30th, 1853, it is stated that of the 23 corporations which had rendered full reports, the aggregate length of all those reported amounting to 2,102 miles, that the entire expenditure (exclusive of the cost of engines and cars,) had reached $85,780,000, or at the rate of $40,800 per mile of road.

I do not mean to be understood by this, that the Syracuse and Binghampton Railroad is to cost at this time the average thus deduced; for we see by the reports that there are some roads which are reported to have cost as low as $15,000 per mile including equipments while others we see exceeding $50,000 per mile.

Analyzing these statements a little, we perceive that grade, masonry, and bridging, varies from $4,000 per mile the least, to $23,000, the greatest, and superstructure, including iron, from $5,000 per mile, the least, to $19,000 per mile, the greatest, and the same of other items.

What I desire to do is, to call your attention to the verage cost of railways in New York, as deduced from the general results furnished by authentic documents.

For example; the length of all the roads laid in New York is about 2,500 miles, and the amount paid for construction and equipment is about $117,700,000, or at the rate of say $47,000 per mile. This embraces all classes long and short, old and new. Some corporations have carried renewals of road, superstructure, and even engines and cars, to cost or construction as it is technically called, but this. it is to be supposed, makes but a small portion of the grand aggregate of $117,000,000.

In looking to the ultimate cost of the Syracuse and Binghamton Railroad it would seem to me to be not unwise to regard the actual cost of similar works here and elsewhere.

With these remarks premised, I shall conclude this paper by expressing the opinions which I have formed in regard to the road, and of its value as an investment.

1st. That the Syracuse and Binghamton road is a most important work, completing as it will, the shortest and most direct line of railway between the Anthracite Coal district of Pennsylvania and Lake Ontario.

2d. It opens a shorter line of railway from Lake Ontario to New York, Philadelphia and Baltimore than any other route.

3d. Independently of its advantage as a through line, it possesses a sufficient population immediately upon and around it to constitute it a well situated line for local business.

4th. In its grades and its alignment it is favorably located. The heavy trade, coal, moving from the South to the North. There being no ascending grade in that direction which exceeds 25 feet per mile, nor a curve which is less than 1,950 feet radius.

5th. The ultimate cost of the line, say within two years from the time it is opened for use, I think will exceed the present estimated cost; and I do not consider it safe to suppose that the cost of the several items enumerated at page 14, derived from the average of a large number of similar works in New York will, in the case of the Syracuse and Binghampton, fall short of that average, at the period stated.

6th. The road itself being in the right place is an all important point. The coal business is a certain thing, and one by which *alone*, properly conducted, the road can live. I do not, therefore, consider that the success of the enterprize is to depend upon its cost simply. Whether that cost be $5,000, or even $10,000 per mile more than the present estimate, would in my judgment be quite a secondary consideration; the point to be assured being, that the road is in the right place. That place being where the certain wants of the community will be sure to furnish sufficient traffic to render the enterprize a remunerating one. Such a line I believe the Syracuse and Binghamton Railroad to be at this time, with the prospect of future development which must further contribute to the ultimate value of the property.

In short I consider it an enterprize well worthy of the attention of capitalists, desirous of making investments in railways.

Your obedient servant,

Boston, March 11th, 1854. W. H. SWIFT.

Journal of Railroad Law.

WHAT ARE "RAILWAY ACCIDENTS?"

In the English Court of Exchequer, a case relating to this subject, *Theabald vs. the Railway Passengers Insurance Company*, was lately tried before a special jury, and the Chief Baron. The plaintiff was the celebrated publisher in Paternoster row, and being frequently engaged in travelling by railway, had effected an annual insurance for £1000 with the defendants in May, 1853, for which he paid £1. In January last, he was travelling with his wife, in a second class carriage, from Birmingham to Shrewsbury, and on his arrival at Wolverhampton, where it was necessary to change carriages, he stepped out on to the platform. The day was very wet, and the steps being very slippery, the plaintiff missed his footing and fell between the platform and his carriage, and in so doing seriously injured both legs. The plaintiff claimed £100 for loss of time and £34 for medical expenses, and also £100 for loss of profits. The declaration of plaintiff alleged that the accident was a railway accident, and was not caused by any negligence on his part; but the defendants, by their plea, alleged that the injury was caused by the plaintiff's negligence, and was not a railway accident for which they were liable on their insurance.

The plaintiff insisted that the amount which he claimed was a fair proportion of the £1000 insured, the accident not having terminated fatally.

Mr. Macauley, for the defendants, admitted that the question of negligence must probably be decided in favor of the plaintiff, that he argued that the Insurance Company were not liable under the circumstances of the case, as the accident was not a "*railway accident.*" He also contended, that, if the defendants were liable for anything the damages must be assessed in that proportion which the degree of injury actually sustained by the plaintiff, bore to death. The company insured the plaintiff's life against railway accidents for £1000, and undertook to pay such sum as bore a proportion to that amount, if the accident did not terminate fatally. The claim ought to be limited to a mere compensation for the injury done to plaintiff, and ought not to embrace loss of profits nor loss of time.

The Chief Baron said that the case was new and difficult from the terms of the act by which the company was chartered. He thought this was not a case for which the company was liable, and that their liability was confined to cases of accidents caused by the negligence of some one connected with the management of the railway.

But that would be reserved for the Court above, and the question for the jury was, whether the accident arose from the plaintiff's negligence, and what proportion of the £1000 they should assess as damages.

The plaintiff was clearly entitled to his £34 for medical expenses. He might also be entitled to £100 for loss of time, or profits, but he could not recover £100 for time and the like amount for profits in addition. The jury rendered a verdict for plaintiff for £134.

American Railroad Journal.

Saturday, April 1, 1854.

Back Numbers of the Journal.

Those who wish back numbers of the JOURNAL for binding are requested to order them at once, as we shall be able to supply them but a few weeks longer.

We can furnish BOUND VOLUMES for any or all years complete since 1831—price $5—per year.

Our RAILWAY MAP in sheets will be sent by mail to any address on the receipt of $1.00—price on rollers $2.00.

We have a few copies of MR. JOHNSON'S valuable work on the Northern route to the Pacific—price by mail $1—with maps.

Stock and Money Market.

Since our last, the share market has shown a gradual though not excessive decline. A steady contaaction appears to be going on in all monetary operations. Only a small business is doing in Bonds and operations in these are confined to first class securities. The foreign news appears to exeri a paramount influence over our money market, and favorable change is hardly to be expected rill affairs in Europe assume a more definite aspect. The rates for money for all purposes continue high.

Cleveland and Toledo Railroad.

The receipts of the Cleveland and Toledo road for the third week of March were $16,750. *The Tolede Blade* sayf:

"Few persons who are not in a position to see it, can form an adequate idea of the amount of travel through this city by railroad. Night before last *thirteen* car loads of first class passengers went west in one train. The number could scarcely be less than 700. Three trains pass through each way daily, and we are told that a fourth train is in contemplation. There is probably no road in the country doing a better business than the Cleveland and Toledo. The freight business is becoming large and will be immense when proper arrangements for its transportation between Cleveland and the New York lines shall have been perfected.

"The Canada road seems rather to have increased the travel by the South Shore; for since that was opened this has wonderfully increased its passenger business."

Delaware and Hudson Canal Companies.

The annual election of the Delaware and Hudson Canal Company, came off to-day, and resulted as follows: Managers—John Wurts, Wm. M. Halsted, Silas Holmes, Jacob R. Le Roy, Wm. S. Herriman, Charles N. Talnot, Maurice Wurts, Lora Nash, Edward J. Woolsey, William Musgrave; Geo. T. Oliphant, Daniel B. Fearing, Robert Ray. John Wurts, President; William Musgrave, Vice-President; Isaac N. Seymour, Treasurer; Gilead A. Smith, Secretary.

The profits of this Company during the last year were $830,972, equal to 11¼ per cent. on the capital stock of the Company. The coal shipped

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of $100.

NAME OF COMPANY.		Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net Earnings for last official yr.	Dividend for do.	Price of Shares.
Atlantic and St. Lawrence...	Maine.	150	1,538,100	2,973,700	5,150,278	254,743	113,520	none	83
Androscoggin and Kennebec..	"	55	809,878	1,016,500	2,064,458	140,561	80,053	none	30
Kennebec and Portland.....	"	72	952,621	29[illegible],80	2,514,067	168,114	100,552	none	41
Port., Saco and Portsmouth..	"	51	1,355,500	123,884	1,459,384	208,669	.....	6	97¼
York and Cumberland,.....	"	20	285,747	341,100	713,605	23,946	11,256	none	24
Boston, Concord and Montreal.	N. H.	93	1,649,278	622,200	2,540,217	150,538	79,659	none	30
Concord	"	35	1,485,000	none.	1,485,000	305,805	141,836	8	107¼
Cheshire	"	54	2,078,625	720,900	3,002,094	287,768	55,266	5	36
Northern	"	82	3,016,634	.....	.....	328,782	163,075	5	56
Manchester and Lawrence....	"	24	717,543	.....	.....	.....	.....	6	80
Nashua and Lowell.....	"	15	600,000	none.	651,214	132,545	51,513	8	109
Portsmouth and Concord....	"	47	.....	.....	1,400,000	.....	.....	none	....
Sullivan.....	"	26	.....	.....	673,500	.....	.....	none	12¼
Connecticut and Passumpsic..	Vt.	61	1,097,600	550,000	1,745,516	.....	.....	none	26
Rutland	"	120	2,486,000	2,429,100	5,577,467	495,397	266,539	none	9¼
Vermont Central.....	"	117	8,500,000	3,500,000	12,000,000	.....	.....	....	12¼
Vermont and Canada.....	"	47	1,500,000	.....	1,500,000	Leased to	the Vt. C	ent.	97¼
Western Vermont.....	"	51	392,000	700,000	.....	Recently	opened.	none	....
Vermont Valley	"	24	.....	.....	.....	.....	.....	none	....
Boston and Lowell.....	Mass.	28	1,830,000	.....	1,995,249	388,108	130,881	7	90¼
Boston and Maine.....	"	83	4,076,974	150,000	4,092,927	659,001	338,215	7	103
Boston and Providence.....	"	53	3,160,390	390,000	3,546,214	469,656	227,434	6	82
Boston and Worcester.....	"	69	4,500,000	425,000	4,845,967	758,819	331,296	7	99¼
Cape Cod branch,.....	"	28	421,295	171,800	633,906	60,743	30,056	2	40
Connecticut River.....	"	52	1,591,100	193,500	1,801,946	229,004	72,028	5	55
Eastern.....	"	75	2,850,000	500,000	3,120,391	488,793	241,017	7	86¼
Fall River.....	"	42	1,050,000	none.	1,050,000	229,445	99,589	8	97
Fitchburg.....	"	66	3,540,000	112,305	3,623,073	574,574	232,787	6	85¼
New Bedford and Taunton...	"	20	500,000	none.	520,475	164,230	43,950	7	117
Norfolk County.....	"	26	547,015	819,743	1,245,927	67,251	23,415	none	68
Old Colony.....	"	45	1,964,070	282,300	2,293,534	374,897	122,816	none	100
Taunton Branch.....	"	12	250,000	none.	307,136	137,406	24,399	8	....
Vermont and Massachusetts..	"	77	2,140,536	1,001,500	3,203,333	218,679	18,648	none	20¼
Worcester and Nashua.....	"	45	1,134,000	171,210	1,321,945	162,109	66,900	4	62
Western	"	155	5,150,000	5,319,520	9,953,759	1,525,224	746,736	7	97¼
Stonington.....	R. I.	50	.....	467,700	.....	240,572	110,892	....	71
Providence and Worcester...	"	40	1,457,500	300,000	1,791,999	291,417	120,892	6	99
Canal.....	Conn.	45	922,500	500,000	1,400,000	.....	.....	4	65
Hartford and New Haven....	"	72	2,350,000	800,000	3,150,600	639,529	294,269	10	125
Housatonic.....	"	110	.....	.....	2,500,000	329,041	168,902	none	....
Hartford, Prov. and Fishkill..	"	50	.....	.....	In progres	69,629	.....	none	....
New London, Wil. and Palmer	"	66	558,861	800,000	1,511,111	114,410	.....	....	39
New York and New Haven...	"	61	3,000,000	1,641,000	4,978,487	806,713	428,173	7	100¼
Naugatuck	"	62	926,000	440,000	.....	.....	.....	8	....
New London and New Haven.	"	55	750,500	650,000	1,380,610	Recently	opened.	none	40
Norwich and Worcester.....	"	54	2,121,110	701,600	2,596,488	267,561	116,965	4	56¼
Buffalo and New York City..	N. Y.	91	900,000	1,550,000	2,550,500	Recently	opened.	none	....
Buffalo, Corning and N. York.	"	132	.....	.....	In progres	.....	.....	none	65
Buffalo and State Line.....	"	69	879,636	872,000	1,921,270	Recently	opened.	....	130
Canandaigua and Niagara F..	"	50	.....	.....	In progres	.....	.....	.....	....
Canandaigua and Elmira.....	"	47	425,509	582,400	987,627	76,760	39,360	none	68
Cayuga and Susquehanna....	"	35	687,000	400,000	1,070,786	74,241	23,496	none	....
Erie, (New York and Erie)...	"	464	10,000,000	24,003,865	33,070,863	4,318,962	1,800,181	7	75¼
Hudson River.....	"	144	3,740,515	7,046,395	10,527,654	1,063,659	338,783	none	66
Harlem	"	130	4,725,250	977,463	6,102,935	681,445	324,494	4	54¼
Long Island.....	"	95	1,875,148	516,246	2,446,391	205,068	44,070	none	32
New York Central	"	504	23,085,600	10,773,823	33,859,423	.....	.....	.....	118¼
Ogdensburgh (Northern).....	"	118	1,579,969	2,969,760	5,133,834	480,137	195,847		25
Oswego and Syracuse.....	"	35	350,000	201,500	607,803	90,616	43,609		70
Plattsburg and Montreal....	"	23	174,042	131,000	349,775	Recently	opened.	none	....
Rensselaer and Saratoga....	"	25	610,000	25,000	774,495	213,078	96,737	....	....
Rutland and Washington.....	"	60	850,000	400,000	1,250,000	Recently	opened.	....	....
Saratoga and Washington....	"	41	899,800	940,000	1,832,945	173,545	135,017	none	30
Troy and Rutland.....	"	32	237,690	100,000	329,577	Recently	opened.	....	33
Troy and Boston.....	"	39	430,936	700,000	1,043,357	Recently	opened.	none	....
Watertown and Rome.....	"	96	1,011,940	650,000	1,693,711	225,152	116,706	8	96
Camden and Amboy.....	N. J.	65	1,500,000	.....	4,327,498	1,388,385	478,413	10	148
Morris and Essex.....	"	45	1,022,420	128,000	1,220,325	149,941	79,252	7	....
New Jersey.....	"	31	2,197,840	476,000	3,245,720	603,942	316,259	10	131
New Jersey Central.....	"	63	986,106	1,500,000	2,379,880	260,899	124,740	3	....
Cumberland Valley.....	Penn.	56	1,184,500	13,000	1,265,143	118,617	76,890	5	....
Erie and North East.....	"	20	600,000	.....	750,000	Recently	opened.	....	125
Harrisburgh and Lancaster...	"	36	830,100	718,227	1,702,523	265,827	106,320	8	55
Philadelphia and Reading....	"	95	6,656,332	10,427,800	17,141,987	2,480,626	1,251,987	7	77¼
Philad., Wilmington and Balt.	"	98	5,000,000	2,399,166	8,067,285	868,038	541,769	5	79

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of $100.

NAME OF COMPANY.		Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net earnings for last official yr.	Dividend for do.	Price of shares.
Pennsylvania Central	Penn.	250	9,768,155	5,000,000	13,600,000	1,943,827	617,625	....	97
Philadelphia and Trenton	"	30	.....	.....	.....	.....	.....	....	....
Pennsylvania Coal Co	"	47	.....	.....	.....	.....	.....	....	102¼
Baltimore and Ohio	Md.	381	13,118,902	5,677,103	22,254,338	2,033,420	798,193	7	58
Washington branch	"	38	1,650,000	.....	1,650,000	348,622	216,237	8	....
Baltimore and Susquehanna	"	57	.....	.....	.....	413,673	152,536	....	..
Alexandria and Orange	Va.	65	.....	.....	In prog.	.....	.....	....	....
Manassas Gap	"	27	.....	.....	In prog.	.....	.....	....	....
Petersburgh	"	64	769,000	173,867	1,163,928	227,593	72,370	7	77
Richmond and Danville	"	73	1,372,324	200,000	In prog.	.....	.....	....	70
Richmond and Petersburgh	"	22	685,000	.....	1,100,000	122,861	74,113	none	40
Rich., Fred. and Potomac	"	76	1,000,000	503,006	1,531,238	254,376	113,256	7	100
South Side	"	62	1,357,778	640,000	2,106,467	62,762	.....	....	....
Virginia Central	"	107	1,673,684	469,150	2,392,215	210,052	99,077	10	50
Virginia and Tennessee	"	73	2,650,091	707,958	3,545,256	109,268	42,736	none	98
Winchester and Potomac	"	32	180,000	120,000	416,532	89,776	.....	12	....
Wilmington and Raleigh	N .C.	161	1,338,878	1,134,698	2,965,574	510,038	153,898	6	....
Charlotte and South Carolina	S. C.	110	.....	.....	.....	.....	.....	....	....
Greenville and Columbia	"	140	1,004,231	300,000	In prog.	.....	.....	....	....
South Carolina	"	242	3,858,840	3,000,000	7,002,396	1,000,717	609,711	7	125
Wilmington and Manchester	"	...	.....	.....	In prog.	.....	.....	....	....
Georgia Central	Ga.	191	3,500,000	418,187	3,465,879	986,074	535,608	8	115
Georgia	"	211	4,000,000	1,214	.....	934,424	456,468	7½	....
Macon and Western	"	101	1,013,088	163,000	1,277,334	278,739	149,960	9	101
Muscogee	"	71	.....	.....	In prog.	59,590	21,731	....	....
South Western	"	50	586,887	150,000	743,525	129,395	71,535	8	....
Alabama and Tennessee River	Ala.	55	.....	.....	In prog.	.....	.....	....	....
Memphis and Charleston	"	93	776,259	400,000	In prog.	.....	.....	....	....
Mobile and Ohio	"	33	879,868	.....	In prog.	.....	.....	....	....
Montgomery and West Point	"	88	688,611	.....	1,330,960	173,542	76,079	8	....
Southern	Miss.	60	.....	.....	.....	.....	.....	....	....
East Tennessee and Georgia	Tenn.	80	835,000	541,000	In prog.	.....	.....	....	....
Nashville and Chattanooga	"	125	2,093,814	850,000	In prog.	.....	.....	....	....
Covington and Lexington	Ky.	38	1,430,150	900,000	In prog.	.....	.....	....	63
Frankfort and Lexington	"	29	357,218	.....	584,902	87,421	44,250	....	80
Louisville and Frankfort	"	65	.....	.....	.....	.....	.....	....	....
Maysville and Lexington	"	...	.....	.....	In prog.	.....	.....	....	45
Cleveland and Pittsburgh	Ohio.	100	1,979,100	1,142,200	3,279,908	432,682	267,278	10	85
Cleveland and Toledo	"	147	2,000,000	1,600,000	.....	.....	.....	....	98¾
Cleveland, and Erie	"	95	.....	.....	.....	.....	.....	....	....
Cleveland and Columbus	"	135	3,027,000	408,200	3,655,000	777,793	483,454	12	120¼
Columbus, Piqua and Indiana	"	46	.....	.....	2,000,000	.....	.....	....	65
Columbus and Lake Erie	"	61	.....	.....	.....	.....	.....	....	....
Cincinnati., Ham. and Dayton	"	60	2,100,000	500,000	2,659,653	321,793	200,967	....	102¼
Cincinnati and Marietta	"	...	.....	.....	In prog.	.....	.....	....	62
Dayton and Western	"	40	310,000	550,000	925,000	Recently	opened.	....	75
Dayton and Michigan	"	20	.....	.....	In prog.	.....	.....	....	....
Eaton and Hamilton	"	36	.....	.....	.....	.....	.....	....	56
Greenville and Miami	"	31	.....	.....	.....	.....	.....	....	....
Hillsboro	"	37	.....	.....	In prog.	.....	.....	....	....
Little Miami	"	84	2,668,402	482,000	3,169,733	667,559	352,133	10	112
Mansfield and Sandusky	"	...	900,000	1,000,000	1,855,000	.....	.....	....	....
Mad River and Lake Erie	"	167	2,387,200	1,767,000	4,110,148	540,518	113,401	....	77¼
Ohio Central	"	57	.....	.....	In prog.	.....	.....	....	79
Ohio and Mississippi	"	...	.....	.....	"	.....	.....	....	....
Ohio and Pennsylvania	"	187	1,750,700	2,450,000	.....	Recently	opened.	....	....
Ohio and Indiana	"	...	.....	.....	In prog.	.....	.....	....	....
Scioto and Hocking Valley	"	44	750,000	300,000	"	Recently	opened.	....	....
Xenia and Columbus	"	54	1,291,000	300,000	1,257,714	317,000	158,500	10	107
Evansville and Illinois	Ind.	31	.....	.....	In prog.	237,506	.....	....	....
Indiana Central	"	...	.....	.....	"	.....	.....	....	77½
Indiana Northern	"	131	.....	.....	"	.....	.....	....	....
Indianapolis and Bellefontaine	"	83	.....	.....	"	Recently	opened.	....	87
Indianopolis and Cincinnati	"	90	1,128,486	1,289,000	1,869,932	Recently	opened.	....	76
Lafayette and Indianapolis	"	62	.....	.....	.....	.....	opened.	....	....
Madison, Indianapolis & Peru	"	138	2,647,700	1,241,300	2,400,000	516,414	268,075	10	70
Peru and Indianapolis	"	40	.....	.....	In prog.	.....	.....	....	65
Terre Haute and Indianapolis	"	72	632,387	663,100	1,353,019	105,944	71,446	4	108
Rock Island and Chicago	Ill.	...	.....	.....	.....	.....	.....	....	....
Chicago and Mississippi	"	135	2,400,000	4,000,000	4,600,000	.....	.....	....	....
Illinois Central	"	...	.....	.....	.....	.....	.....	....	....
Galena and Chicago	"	92	1,932,361	500,000	In prog.	473,548	286,152	....	121
Michigan Southern and Ind. N.	Mich.	315	2,800,000	3,741,564	7,276,616	1,200,922	586,929	17	118¼
Michigan Central	"	282	4,856,700	3,977,563	8,618,505	1,145,598	582,816	8	107¼
Pacific	Mo.	38	1,000,000	none.	In progres	Recently	opened.	....	....

from Honesdale was 494,209 tuns. The Pennsylvania Coal Company also shipped 512,777 tuns. The season was 193 working days. The enlargement of the Canal has been completed and the enlarged boats have carried 106 to 140 tuns. The stock of coal left unsold when navigation is resumed will be light. The sales of coal have reached $2,046,033; tolls $378,479; profits as above stated $830,972. The amount of coal on hand now is $337,644, against $391,229 last March.

Freight in Transitu over the Canadian Railways.

A most important arrangement has just been effected, by which merchandize passiong from the eastern to the western States, and vice versa, can be carried over the Great Western Railroad without the inconvenience that has heretofore attended the transit, in consequence of tne Custom House regulations. Gen. Jacob Gould, of Rochester has just returned from Washington, where he had been as an agent for the Central Railroad Company, to effect this desirable object. Sec'y Guthrie at once gave his attention to the matter as laid before him by Gen. Gould, and the following method of passing goods over the Great Western Road has been adopted. The Treasury Department are to appoint two special Inspectors, to be stationed at either end of the Great Western Railroad, whose duty it will be to receive al through goods, and pass them over to the conductors of the Railway trains, who are to be sworn as Deputy Inspectors. These Conductors will deliver at either end, on oath to the Inspettors, the goods as they receive them. The Great Western Railway Company assume the expense incurred by the appointment of their Conductors as Inspectors of the United States. This arrangement will greatly facilitate the transmission of property by the Canada route, and inure to the benefit of all concerned.—*Rochester Union*

Terre Haute and Alton Railroad.

Large additions have been recently made to the Stock of this Company. The capital account is as follows:

Capital Stock	$2,900,000
1st Mortgage 7 per cent. Bonds (sold).	$1,000,000
2d " 8 " " " " .	250,000
" " " " " " unsold.	750,000
	$4,900,000

The estimated cost of the road is not far from 4,000,000. The means provided are ample for its construction without resorting, probably, to the whole of the last issue of Bonds.

The work of construction is being carried forward with vigor, and there is a good prospect that nearly the whole line will be completed within the year.

The rapid progress of the Wabash Valley line, and its proposed connection with the Terre Haute and Alton Railroad has added a new importance to, and materially improved the prospect of the latter. In addition to the pecuniary assistan brought to it, the above connection will const tute it a part of a leading route between the Mississippi and Lake Erie. Such connection wit a large local business which, it is admitted, t road must have, makes it a very different affa from what it was a year since. It is now in the hands of parties of unquestioned pecuniary ability, by whom it will be carried forward to an early and successful completion.

Memphis and Ohio Railroad.

We invite the attention of contractors to the advertisement of lettings on the above road. The object of the road is to connect Memphis with the Ohio at Louisville and Cincinnati. Our next issue will contain a detailed statement in reference to the project.

Breakage of Railroad Axles.

The attention of Engineers and those engaged in the management of Rail Roads has been especialey directed to this subject of late, by the decision of Mr. Justice Woodward of Pennsylvania, in the case of Scott vs. the Ohio & Pennsylvania Rail Road Co; and also by a table of accident arising from imperfect axles published in the past report of the Philadelphia & Reading Rail Road Co. It is our purpose to communicate a few practical suggestions that have arrisen from a consideration of this matter; satisfied if they should prevent any accident or assist indirectly, in placing the responsibility upon the right parties.

The Honorable Judge was of the opinion, that the company, having failed to show that they had made any attempt to discover whether any *latent* defect existed in the axle were liable, etc. This may be legally sound, but is practically impossible; the fact being, that any effort to discover a *latent* defect, ruins the axle; or in other words, if the axle were properly tested, it is unfit for use, in nine cases out of ten. This, Mr. Edward Miller, Chief Engineer of the Northern Pennsylvania Railroad, mentioned in his evidence before the Judge, (if we recollect aright,) and also very justly remarked, "that the chief reliance must be upon the standing and character of the manufacturer."

A trial might be had of every tenth or twentieth axle, or the fag ends of each axle tested, but neither of these methods are likely to find favor, owing to the great labor and expense they would involve and the merely approximate results attained by them. We regard the stamping of the makers name upon the middle of the axle, as a good practical endorsement of the quality, and it should be done in full clear characters, (not a mere initial, only partially stamped,) where there can be no danger of turning it off in finishing up the axle. This is now left optional, but we cannot see the difference in importance of stamping boiler plate, (made compulsory, we think, by legislative enactment,) and the stamping of car and engine axles, as far as concerns public safety. And, as there will always be those, who prefer economy to safety, and will not pay the price necessary to purchase a good axle, let the different qualities be stamped as on boiler plate. Then, if a verdict is required for damages, by the breaking of a second quality axle, the case is much simplified. How may it be simplified in case of breakage of an axle of first class quality, from makers of undoubted standing?

We have before us the report of the Philadelphia and Reading Railroad Company, exhibiting a table of broken axles from 1848 to 1853, showing an average of two hundred and thirty-one per annum, and an average of ten bent axles per annum. (May not the latter arise from the shape of the axle, being reduced to 3 inches in the middle?) We have heard this table used as an argument against hammered axles; these axles all being made at the Tilt Hammer Shop of the Railroad Company. The writer is intimately acquainted with the method of manufacturing these axles—they are drawn from piles of tough scrap into slabs or billets and then repiled and drawn into axles with very heavy steam hammers, which do their work effectually; so that if the scrap iron is good, and there can be no doubt that it is, being principally made in the works of the company; we have no hesitation in saying that it will make an axle equal or superior to the best blooms to be had.

Why, then, the great amount of breakage shown in the tables? From the simple fact, that the tonnage and wear of this railroad, is greater than any other railroad in the United States, and consequently the wear on axles must be very great also, and we are confirmed in the opinion, (viz: that the broken axles have each done good service proportional to their size and strength,) from the circumstance that every fracture that has come under our notice has been perfectly crystaline or granular; and we will venture to say that Mr. Milholland sends out no crystaline axles from the works of the company. Until the Pennsylvania and Reading Railroad Company have used rolled axles (reduced in the middle) for an equal length of time, with better success, we cannot see the force of this argument against hammered axles.*

An accurate test of the truth of the above would be made by stamping each axle with the *date* of its manufacture, as the cars of the company are dated, and we might then arrive at the period that an an axle should be run under a given tonnage. Tables of this kind from the different railroad companies would be of great interest and value.

We therefore would recommend in this matter, which we view as of great importance to the public safety; that the stamping of car and engine axles should be made the subject of legislative enactment, as in the case of boiler plate—that railroad companies, for their own security, shall require the stamp of makers name, and quality; and finally, that the maker should stamp the date on every axle, which will show when an axle has been in use long enough to throw the responsibility of breakage upon the railroad company using it; and thus simplify the verdict when an axle is from a good maker, but overworked. A. & P. R.

Philadelphia, March 21, 1854.

*We say this from no interested prejudice, being engaged in the manufacture of both rolled and hammered axles; but that each side should be fairly presented.

New Locomotive upon the New Jersey Railroad.

The well known firm of Rogers, Ketchum and Grosvenor have just placed upon the above road a new locomotive, combining all of their known improvements with an extent and perfection of finish and ornament never before attained as we think, for a like purpose in this country. Being the best effort of these builders, and combining all of their original improvements, designed and adopted as the result of all their experience, this engine deserves especial notice.

It is named "Gov. Southard," and has 14½ inch cylinders, 22 inch stroke, four drivers of 6 feet diameter and a truck.

Beginning with the boiler (the most essential part of the machine) it has most liberal proportions of heating surface and steam room; the outer crown of the firebox, for its whole length, being elevated about 15 inches above the top of the barrel of the boiler. With the "elevated crown," first adopted by Mr. Rogers, more steam-room and a better security against "priming" is obtained, and as it allows of more flue-room it really makes a larger boiler. It also facilitates the entrance of a man within the boiler for examination, or repairs. The boiler has two steam domes, also, both protected by gracefully formed brass coverings. By the use of two domes more steam-room is afforded, while, from drawing the steam one-half from each, a more uniform draught of steam is obtained, an important protective against "working water" or priming. The "elevated crown" is also a valuable protection from the same difficulty.

The firebox is protected with a highly planished covering of sheet brass, resting upon wooden lagging. The ordinary Russia iron covering of the barrel of the boiler is confined by swelling brass mouldings, of a showy and elegant form, in place of the usual flat bands.

The "expansion braces" for connecting the furnace with the frame, and for allowing the expansion of the boiler, without strain, when heated, are peculiar excellencies of Mr. Roger's engines, and they have always been made and fitted with as much care and accuracy as any part of the running machinery.

The frame, while it has no dead weight, has great strength. The pedestals are welded on, and wedges are provided for taking up the wear of the boxes.

The cylinders, which are arranged for the "outside connection," are secured in a very strong manner. The smoke box is made thicker, even, than the shell of the boiler, and is stiffened by a stout wrought iron ring, rivited within its forward end. To the flat sides of this firm support, and to the frame, the cylinders are bolted. These, with the steam chests, are amply protected from cold by handsome brass covers.

The truck frame takes its load upon its centre, but upon an extent of bearing surface sufficient to prevent any rocking motion. By this valuable arrangement the truck adapts itself with the least friction to curves in the road, while jolts and shocks are also better distributed upon the main frame. The truck axles have both inside and outside journals, by which the boxes wear much better than with inside journals alone.

The link-motion was first practically applied in this country by Mr. Rogers. At his hands its proportions and adjustments have been perfected, and its wearing qualities improved. By the most exact compensations its suspension has been established to yield the greatest equality of admission of steam on both strokes of the piston. Beside this, the "lead" is regulated so as to be the least when working steam through the full stroke with a heavy load, and the most with a high degree of expansion and rapid motion. In the material, mode of finishing, and adjustment of these links, and of all parts of the valve motion, we can say, with a full knowledge on our own part, that they surpass most others for durability, accuracy and efficiency.

The pumps are of brass, with capacious air chambers on both their suction and forcing sides.

It would be out of place in a general notice to specify all the detailed merits of the class of engines of which the "Gov. Southard" is but a single member. But it deserves to be said that in every point, whatever long and successful experience, practical and theoretical skill, and energetic management could accomplish, is attained. We have been the more particular to refer to some of the leading excellencies of these engines as the greater

part are originally due, either in conception or in their first successful application to this firm. The managing partner, Mr. Rogers, by his practical appreciation of improvements has done more, probably, to influence the *style* and *proportions* of American passenger engines than any other builder. In behalf of the engineering principles which have been so consistently maintained in this Journal, we take pride in exhibiting such successful examples of their practical application as his engines afford.

Beyond these general merits, common to all of the engines from these builders, the "Gov. Southard" deserves especial notice for the superb finish and elegant and profuse ornament which has been bestowed upon it. In beauty it rivals a poetic creation. Every part has been subjected to assiduous labor or creative art. It seems like the ideal in comparison with the forbidding *real* of much of our railroad machinery. Beauty is an element deserving of consideration, even in its application to locomotives. With other engines, on the New Jersey road, upon which much ornament has been bestowed, they retain after long use, a fine appearance, showing that with care, and the natural pride which an engineman has in a handsome engine, this pleasing quality is not out of place in such an application.

It would be well, if railroad companies could know the importance of *time* to a builder, in building a *good* engine. Engines are often built and delivered in an unfinished condition, generally at greater cost to the builder, and invariably at a loss to the purchaser, for at his expense imperfections exhibit themselves and require renovation. Such a work as the one just noticed can never be commanded, either "ready made" or at the "shortest" notice.

Buffalo, Corning and New York City Railroad.

A meeting of the stockholders of buffalo, Corning and New-York Railroad Company was held at Le Roy on the 16th inst., which was very largely attended. *The Buffalo Courier* gives the following summary of the proceedings:

"The Secretary presented and read to the meeting a very full and detailed statement of the affairs of the road, from which we are enable to present the following brief summary;

Capical Stock	$1,400,000
Paid in	1,100,000
First Mortgage Bonds	1,000,000
Second Mortage Bonds	600,000

Of which the Company have on hand about $200,000 unsold. $400,000 of these have all been sold to stockholders on the line of the road at not less than 80c.

"The floating debt of the Company is about $200,000. There are sufficient unsold bonds and other available assets of the Company to pay off the entire floating debt and leave a small surplus remaing, leaving some $300,000 of unpaid stock yet in the hands of the Company.

"The whole distance from Batavia to Corning, 100 miles, is finished and running; of the remaining 35 miles from Batavia to Buffalo, the right of way is all obtained, the bridging, masonry and grading completed, and the ties and fencing stuff are on the ground.

"The first 45 miles of the road complete and ready for running cost less than $13,000 per mile. The entire portion from Batavia to Corning cost a fraction less than $19,000 per mile all complete.

"It was resolved with great unmaimity by the stockholders to petition the Legislature to pass the bill now before it authorizing the Directors to issue preferred stock to the amount of one-third the original capital at not less than its par value, for the purpose of completing the road at the earliest possible moment. And from the spirit manifested by the stockholders present, there can hardly be a doubt but that the stock will be immediately taken up, thereby enabling the company to finish the road to Buffalo with the neccessary equipage early the coming season.

"We learn that notwitstanding the delays and detentions that the management have had to encounter, the road has cost less per mile than any other road in the State of New-York, and we are assured that when completed, it will be one of the most substantial, well built, and best paying roads upon its cost in the State."

New Orleans and Mobile Railroad.

The New Orleans Commercial Bulletin, furnishes the following synopsis of an Act which has recently passed the Legislature of Louisiana, authorizing the city of New Orleans to subscribe to the stock of the Pontchartrain Railroad Company, to enable said company to construct a railroad from New Orleans to Mobile:—

The first section authorizes a subscription on the part of the Common Council of $1,500,000, and provides that the depot shall not be located above Canal street. Section 2d enacts that the subscription of the city is to be made by the Mayor, payable in bonds of $1000 each, having 30 years to run, bearing 6 per cent interest, transferable by endorsement of the President and Secretary. Said bonds may be converted into stock of said company at any time not exceeding five years from date, under such regulations as the parties in interest may agree to; that a tax on every species of property, etc., now taxable, shall be levied in January of each year, to pay the annual interest on said bonds; that the bonds of the city issued for the stock of said company shall be received at par value, and the stock thus issued shall be forever pledged for redemption of the bonds.

Section 3d prescribes that no act of the Common Council shall be legal, after the 1st of January in each year, until the railroad tax is levied, provided that no levy for interest shall be made after the payment of 6 per cent. by the company on the stock held by the city, which dividends shall be applied by the city to the payment of the interest; and when the dividends on said stock owned by the city shall amount to more than 6 per cent., the excess shall be applied by the said Railroad Company to the purchase of city bonds thus issued; when dividends of less than 6 per cent. are received it is understood that a tax for interest shall be levied for difference only. The net earnings of the existing Pontchartrain Railroad are to be divided, as heretofore, among the stockholders, until the extension of the road to Mobile.

Section 4th provides that immediately after the passage of an ordinance authorizing the subscription aforesaid, and its approval by the voters, the Mayor shall cause bonds to be issued to the company for the amount of said subscription, on receiving from the company certificates for 15,000 shares of the stock thereof, of $100 each, full paid; thereupon the Mayor is required to execute before the Secretary of said company, who is authorized to receive and execute the same, a pledge of said stock in the amount of 10 shares for each $1000. The bonds issued under this act are never to be made a basis for free banking.

Section 5th provides that no ordinance passed by the Common Council shall be valid until it is ratified by a majority of the legal voters of the city. Said election to take place within fifteen days after the passage of ordinance, to be conducted in the manner prescribed for city elections. Ordinance not to be submitted to the people on the same day that ordinances for similar purposes shall be submitted.

Section 6th declares that no ordinance of the Council, in conformity with this act, shall be submitted for the approval of the voters until the Directors of said company, duly autharized by the stockholders, shall notify the Mayor of their acceptance of said ordinance.

Section 7th refers to the election of Directors, the representation of the city in the directory, and the conversion of the bonds into stock, the details being unnecessary to give the reader a general idea of the charter.

Section 8th provides that the company may, at any time, on handing over to the Treasurer, any bond or bonds issued under this act, receive from the city an equal amount of the capital stock of said company, the same to be transferred by the Mayor, subject to their disposition, the bonds thus returned to be immediately cancelled—provided the city shall have the option to pay the bonds and retain the stock. According to the 9th and last section, the act takes effect from and after its passage.

Railroads of Maine.

We give below the cost of the several railroads in Maine, carefully compiled from the returns made to the office of Secretary of State, for the year ending December 31, 1853.

Name of Road.	Length of Line. Miles.	Stock Fund.	Amount of Indebtedness.	Total Cost of Road.
Androscoggin	20	$86,863 84	$220,000 00	$315,865 00
Androscoggin and Kennebec	55	824,131 80	1,043,549 00	2,030,140 38
Atlantic and St. Lawrence	149	1,692,200 00	3,614,520 01	5,306,720 00
Bangor and Piscataquis	12	135,000 00	1,650 00	138,913 67
Calais and Baring	6	100,000 00	136,563 26	217,255 55
Kennebec and Portland	72½	1,073,673 00	1,439,694 48	2,520,981 30
Machias port	7½	75,000 00	800 00	100,000 00
Penobscot	—	64,781 00	73,000 00	Unfinished.
Penobscot and Kennebec	2¾	133,865 00	49,657 12	
Portland, Saco and Portsmouth	51	1,337,000 00	132,000 00	1,303,195 49
Somerset and Kennebec	—	54,667 51		Unfinished.
York and Cumberland	18	292,649 89	408,192 31	748,699 30
Buckfield Branch	8 9 3/4	5,879,832 33	7,005,126 18	
		No return.		
	406¾			

In addition to the above the Boston and Maine railroad owns some three miles in this State, but they keep only one account showing the cost and operations of the entire line from Boston to the South Berwick Junction.—*State of Maine.*

Hannibal and St. Joseph Railroad.

We have the satisfaction of being able to state, that the meeting of the Directors and Contractors connected with this Company, in this city, has resulted in placing it upon a substantial basis, and the work will now be prosecuted with all possible energy. The whole of the stock which remained unsubscribed has been taken by Eeastern capitalists, and the funds advanced for the purpose of prosecuting the work, according to the terms of subscription. It is confidently expected that forty miles of the road, from St. Hannibal west, will be in operation in September next, and the whole road is to be completed and in running order to St. Joseph, in thirty month. This will give a new im-

pulse to property, business and population all along the route, and greatly add to the wealth of the State.—*Missouri Republican*

Jackson, Tenn., March 18th, 1854.

Editor of Railroad Journal.

Sir, I notice in the money article of a New York daily paper, of recent date, the following remarks touching the Mobile and Ohio Railroad.—"It is one of the great trunk lines of the Southwest, which the recent change in the Railway bond market has left in an unfinished condition; with a very short section, only completed next to Mobile, and with little done beyond the preliminary surveys, out of Alabama."—In this the writer has made three mistakes,—First, the "*little*" done out of Alabama is as follows; a careful location of the whole 494 miles of the main road and 104 miles of important branches—The "very short section completed" is 43 miles long. The successive divisions of the road, counting from the part finished, are now in the following stage of advancement, as I know, from my own personal inspection, and from the returns of the Division Engineers.—The first division of 83½ miles, is nearly graded, and is ready for the iron, as fast as it can be laid. The second division of 59 miles, embracing the heaviest work upon the whole road, is nearly half graded. —The third division of 82¾ miles, is two-fifths graded.—The fourth division of 66½ miles, is two-fifths graded.—The fifth division of 118½ miles, is one-third graded, and the Paducah branch of 59 miles, the sixth division, is one-fourth graded. In addition, the Columbus, Miss., branch 14 miles long, is two-thirds graded, and considerable work done upon the Columbus Ky. branch, and the contiguous part of the main line, which together are 18½ miles long; making an aggregate of 540 miles under contract, and in rapid progress, with all necessary means subscribed to prepare them for the rails in the following order, to wit: from Mobile to Pontotoc County, Miss., 282 miles, including the Columbus Miss. branch; and from Paducah, Ky, to Jackson, Tenn., 110 miles; in all of this year; leaving 134 miles between Jackson, Tenn., and Pontotoc County, Miss., including the latter, of which 9-10th will be completely graded, within the next 12 months, and the remaining 1-10th in all of 1855.

The Company now have 15,000 tons of rails on hand, and arriving, and which will be laid during the ensuing spring and summer, the work of tracklaying having begun some weeks since, not again to be suspended until the line is completed.—If all this is but "little," how much may be considered *a large amount*, in the estimation of a progressive editor?

Again the Paragraph reads: "the recent change in the Railway bond market" has left "the Mobile and Ohio Railroad in an unfinished condition."—This is wrong, because the local work of the road *never was* and *never will be* dependent upon the bond market. Its advancement has been, and is as rapid from payment of instalments, as it would have been, were Railway bonds selling as freely as in 1852.—Instead of being "*left*," it should in justice be said, that the Company, for all but rails and machinery, amply provided with means, has gone *ahead*, and "*left*" the bond market *behind*.

The third mistake is, that the Mobile and Ohio Railroad, as a borrower for rails and equipment *only*, is confounded by hasty writers, with speculative and trashy enterprizes of local character, commenced without means or system, and destitute of commercial or public guaranties of profit or success. Such schemes must borrow from first to last, or stop and die. The latter alternative, in many cases, is a blessing to all parties concerned. You know, Mr. Editor, the financial principles, upon which the Mobile Road has been projected, also its national, local and commercial, characteristics; that it needs no exaggerated statements, nor inflated essays, from any quarter; nor needs the errors and envious antagonism of opposing interests. It has pursued, and will pursue, the even tenor of its way to completion, by applying wisely, and with reasonable dispatch, the means provided for its construction, which are as follows:

For local work expended	$1,456,000
" " " to be "	3,645,576
Total cost of local work	$5,101,576
Total subscriptions for do	$5,107,576

For Rails and Equipment.

Loan of the six per cent. bonds of the State of Tennessee, $10,000 per mile for 5th divlsion, 118½ miles	$1,185,000	
Cash loan of the State of Alabama for immediate payment of rails	400,000	
Stock subscription of the State of Mississippi from the internal improvement fund of that State	100,000	
Leaving to be raised by sale of Company's bonds, now partly in the hands of George Peabody & Co., of London	5,215,000	
Total required for rails and equipment		6,900,000
Total for the road and branches		$12,007,576

Please give this letter a place in your Journal, and rest rssured, that the Mobile and Ohio Railroad Company is a long and strong working team, all pulling together upon the right track; and their road cannot be "*left*" unfinished, so long as the people do all their own grading, and good securities for rails are preferred by capitalists to poor ones; nor retarded by accidental or designed misrepresentations.

Very respectfully I am yours

JOHN CHILDE,

Eng'r and Gen'l Ag't, M. & O. R. R.

Warsaw and Port Byron Railroad all Under Contract.

We have gratification of annonucing, sayes the Oquawka Spectator, to our readers that this road is now all under contract—from Warsaw to Port Byron—and that the high character of the contractors, Messrs. Colver, Kent & Co., is a sure guarantee that the work will be done within the time limited by the contract.

We understand the terms to be, on the part of the contractors, to build from Warsaw to Nauvoo, and from Rock Island to Port Byron by the 15th of September next, and complete the balance of the road between Nauvoo and Rock Island within thirty-three months from the date of the contract, build depots, and furnish all necessary rolling stock for freight and passengers, for $25,000 per mile. The contractors to become stockholders for one-fourth of all the stock.

The Company agree to pay one-fourth in cash as the work progress, and the balance in bonds of the Company at par.

Pacific Railroad--Contract for the Southwest Branch.

Mr. Allen, President of the Pacific Railroad, returned from the East night before last, bringing with him the contract for the Southwestern Branch Railroad, and the land office certificate, and list of lands selected on the route of the road under the grant of Congress. The amount of land obtained by the company is nearly 1,200,000 acres, and is deemed very valuable. The principal part of the selections outside of the six mile limit, are located among the public lands of the Southwest. The date of the approval of the lists by the Secretary of the Interior is March 14, 1854.

The contractors for the Southwestern Branch are Messrs. A. S. Devin & Co., of New York, who are spoken of as an able and reliable, and well known firm of successful contractors.

With the exception of the State Stock appropriated to that Branch ($1,000,000,) and the $500,000 of private subscription necessary to secure it, the Contractrrs take their pay in the construction bonds of the company. The first division, 77 miles and over, to be built in two years; the second division, about 100 miles, in three years; and the whole line in four years, being a little over 271 miles in all. In the raising of the $500,000 private subscription, as a condition precedent to obtaining the Stock, the contractors will assist.

The President of the company will immediately order books to be opened for this subscription on the Southwestern Branch, in this city, and supply suitable agencies to canvass for the purpose. It is quite possible, if it should be necessary to secure it, that the company will agree to make this $500,000 a guarantied stock.—*St. Louis Republican.*

Indiana and Fremont Railroad Company.

Sometime last season, a company was organized with the above title, to build a railroad fram Fremont, Ohio, to Union, Indiana. That organization was consmsumated by the election of the following officers: Lee Q. Rawson, Esq., President; Wilson Vance, Esq., Treasurer; and J. A. Ward, Esq., Secretary. Directors: L. Q. Rawson and James Moore, Fremont; C. W. Foster, Rome; D. A. Cory, S. Carlin, J. M. Coffinbury and George W. Gallaway, Findlay. The capital stock authorized is $1,200,000, with power to increase.

The road commences at Fremont, Ohio, at the head of navigation for steamboats and sail vessels on the Sandusky River, and passes through the flourishing towns of Rome, Findlay, Lima, and St. Mary's, in Ohio, and terminates at Union, on the State Line of Indiana, where it connects with the Bellefontaine and Indianapolis Road. A road is also about being constructed from Fremont to Sandusky City, making nearly an air line from Sandusky City to Indianapolis; and by the construction of about 40 miles of road in Indiana, from Union to the Jeffersonville Road, will give a very direct line to Louisville. At Fremont, it connects with the Cleveland and Toledo Road, and at Lima, with the Dayton and Michigan, having a contract with the latter for running trains from Sandusky City to Dayton and Cincinnati, and making the shortest line between these points. The work from Fremont to Lima, 64 miles, is under contract to Messrs. Shoemaker, Doolittle & Co., who are prosecuting this work with their accustomed energy. From Fremont to Findlay, 34 miles, the line is nearly prepared for the iron, and the whole will be completed to Lima by the first of September next. The balance of the line, from Lima to Union, is to be put under contract immediately. The company have reliable stock subscriptions sufficient for the whole work, including the laying down of the iron. The public,

generally, have heard but little of this enterprise. The people along the line have taken hold of it with a determination to build the road, relying mostly on their own means, having the utmost confidence in its success and utility; and the fact that the shrewd and enterprising contractors, Messrs. Shoemaker, Doolittle & Co., have taken hold of the work, is a guaranty, not only that it will be prosecuted to a speedy completion, but that it will also prove to be a profitable investment for the stockholders.

The Crystal Palace.

The extent of the losses suffered by this "*calamity*" have been fully shown by the labors of the investigating committee:

It appears in substance, that the indebtedness of the Association is about $170,000. The loss on the Exhibition is estimated from the 1st Jan'y last to the 9th March inst. at a little over $19,000, or about $134 per day. It appears, therefore that the Company has sunk

Its whole capital....	$489,000
All its receipts, about	380,000
And is in debt.....	170,000
Total.....	$1,089,000

Against which it has the Crystal Palace building, insured for $91,000, Kiss's Amazon, &c.

The result shows how New Yorkers do some things. While they manage as well as any other body of men, matters that come within the sphere of their own duties, or employments, there are none that make a worse figure in the superintendence of such as do not. Private enterprize might have made a good thing out of the Crystal Palace, which has proved such a disastrous speculation in the hands of a most highly respectable body of men, who acted under no other responsibilities or motives, than those usually felt by directors of a company, in the result of whose success they had not a large pecuniary interest.

Chicago and Mississippi Railroad.

The *Alton Telegraph* furnishes the following statement in reference to the progress of this work.

We are informed that the work upon the Alton and Chicago Railroad, beyond Bloomington, has been resumed, The road is in charge of Mr. Gardiner, the Chief Engineer of the Company, and will be pushed to completion with all dispatch to Joliet, whence it will be extended by the cut off to Laporte in Indiana. The line is in an advanced state of forwardness, the greater portion of it being graded and ready for the superstructure. The rails are already laid several miles north of Bloomington, and several miles south of Joliet. Large quantities of iron are now going up from this point, intended for the Chicago road. There appears to be a reasonable certainty that the road will be finished through to Joliet during the coming season, thus shortening the time to Chicago several hours.

In regard to the "Laporte Cut-off," over which Chicago has made so much ado, we have been told that the contractors are pushing it through to Joliet as rapidly as money and men can accomplish it. A large force has been upon it during the greater portion of the winter, preparing it for the rails. The Southern Michigan Company, who are building it, have likewise the control of the Alton and Chicago road. The two lines together will form a road, leaving Chicago nearly fifty miles to the North, and intersecting the Southern Michigan road at Laporte, a point near the southern shore of Lake Michigan. When these connections are completed, the running time to New York city will be less than 70 hours.

Atlantic and St. Lawrence Railroad.

The following abstract of the annual report of the Atlantic and St. Lawrance Railroad Co., shows the condition of that road, December 31 1853.

Length of Line—149 miles.
Weight of Rail—63 lbs per yard.

Capital paid in,.....	$1,692,200 00
Amount of indebtedness,.....	3,614,520 01
Amount due Corporation,.....	53,648 85
Number of passengers in 1853,.....	161,354
" through " "	64,047
" way " "	97,308
Received from passengers,.....	$130,435 26
" " freight,.....	167,733 40
" " other sources,....	17,869 34
Total receipts in 1853,.....	$316,038 00
Number of Depots,.....	28
" Engine-houses,.....	6
" Shops,.....	1
" Engines,.....	23
" Cars,.....	453
Miles run by Passengers trains,.....	173,374
" Freight "	155,341
" other "	29,187
Whole number of Stockholders,....	1,885
" residing in Maine,..	1,836

Dividends in 1853, 6 per cent.

The line to Montreal was not opened in season to materily affect the earnings of the past year

Emigration from Great Britain.

The following table, copied from authentic returns shows the extent of the emigration from Great Britain at the present time, and its annual increase for the past ten years, ending in 1852.

	To North Br. Am.	*To U. St.*	*Australia &c.*	*Total.*
1843....	23,518	28,335	5,359	57,212
1844....	22,924	43,660	4,102	70,686
1845....	31,803	58,538	3,160	93,501
1846....	43,439	82,239	4,173	129,851
1847....	109,680	142,154	6,436	258,270
1848....	31,065	188,233	28,791	248,089
1849....	41,367	219,450	38,681	299,498
1850....	32,961	223,078	24,810	280,849
1851....	42,605	267,357	26,004	335,966
1852....	32,876	244,261	91,630	368,764

The present rate of emigration is over 1,000 per day, and is rapidly increasing. The effect of this rapid *efflux* of population must be to raise the rate of wages in England to very nearly the standard paid in this country, and will be very likely to destroy the advantage which *cheap* labor has given to the manufacturing establishments of that country over those of the United States.

Cincinnati, Union and Fort Wayne Railroad.

This road is an extension, virtually, of roads now in operation from Cincinnati and Dayton to Union, Indiana; to Fort Wayne, on the Wabash and Erie Canal. Being the commercial center of one of the best portions of the Wabash Valley. Fort Wayne is an important point, and one from which a railway connection with Cincinnati is very desirable.

The route, in passing nearly due South, to Union, will accommodate a section of the State which is now nearly deprived of railway facilities; but which, on account of its exceeding productiveness in grain and live stock, is adequate to the most ample support of the road proposed.

We are happy to be able to announce the prospect of a vigorous prosecution of the work on this line, from Union to Fort Wayne. The President of the company, Jeremiah Smith, Esq., has recently visited this city, and Boston, to perfect arrangements for the iron necessary to complete the road, and there is now every prospect, we are assured, that it will be opened for business as soon as the track can be laid. As the management of this enterprize is entrusted to men of large experience, great prudence, and unfaltering energy, we anticipate for it a speedy completion and highly remunerating business.

Growth of Detroit.

We clip from the *Detroit Tribune* the annexed figures exhibiting the growth of Detroit in population since 1810. It will be seen that her progress in this respct is very rapid and excelled by few of her compeers. The amount of taxable property returned for the year 1853 was, $10,741,115. The *Tribune* also furnishes a long and interesting review of the business of the city in its various branches denoting a progress in industrial affairs and commercial operations quite as gratifying as that of her population. The *Tribune* says:

A few figures will show the rate of increase in population to the present time.

The population in	1810.....	770
do.	1820.....	2,442
do.	1830.....	2,222
do.	1840.....	9,193
do.	1844.....	10,939
do.	1845.....	13,065
do.	1850.....	21,057
do.	1852.....	26,648
As taken in the summer of	1853.....	34,439

This, however, includes only those strictly within the corporate limits, while there is both above and below the present boundaries a space quite equal to either of the city wards built up, and inhabited by people whose entire occupation and interests are in the city, and who should therefore properly be enumerated with it. Adding these to the number stated above, and we have a population of nearly or quite 40,000. The increase for the year 1853 was about 35 per cent., and from the many large enterprizes now setting forward, and the extensive preparations for building, we cannot anticipate at the close of the current year a population of less than 50,000 or 55,000. In every direction the city is extending itself beyond its present limits, new streets are being opened, shops, dwellings and stores being erected in districts where both convenience, health and security require the extension of the city laws and police, as well as improvements for drainage, water, paving, &c. It is hoped that the charter may be amended at the earliest possible date, to embrace such sections as are thus situated. The value of property there will be greatly enhanced, and the interests of the city promoted.

Norwich and Worcester Railroad.

The Legislature of Massachusetts has passed a bill extending the loan for $400,000 made to the Norwich and Worcester Railroad Company in 1836, and which comes due in 1856, twenty years beyond its maturity, at 5 per cent. per annum. The act provides that the State Treasurer shall sell $400,000 State Five per Cents, and place the premium obtained for the same to the credit of the Railroad Company, as the nucleus of a sinking fund, to be increased by the payment by the company of $10,000 per annum, which the Treasurer is to have placed on interest, and compounded until the whole debt is liquieated. This places the funded debt of that company in a most desirable position. Of floating debt it has none; and what is very remarkable in the history of railroads, the construction account has been reduced within the past three years instead of increased.

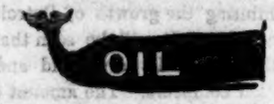
Delaware Railroad.

The Directors of the Delaware Railroad have contracted to build the whole line from the Newcastle and Frenchtown road to Seaford.

New Jersey Camden and Key Port Rail Road,

The New Jersey Legislature has passed a law chartering a company to construct a railroad from Camden to Keyport, which will be in a straight line from Philadelphia and New-York. The road will pass through Mount Holly, New-Egypt and Freehold to Keyport. Another road is also charterad to run from Keyport to Tom's River, and thence to Delaware Bay and Cape May.

Howland, Burgess & Smitth,



MANUFACTURERS of PURE SPERM OIL for Railroad Engines and Lamps, of Refined Whale Oil now so generally used for *car wheels*.—Works, *New Bedford Mass*—Store, Albany, N. Y.

Orders (directed to either place) *respectfully solicited from Superintendents*.—All Oil warranted pure and perfectly satisfactory.

Pneumatic Pile Driving.

FOUNDATIONS FOR BRIDGES, PIERS &C.

BY THE PNEUMATIC process hollow cylindrical piles or tubes from eight inches to ten feet diameter can be driven through sand, mud, clay or other material to any required depth. The complete success which has attended the operations of this process shows it to be eminently practicable in, and much the best method known for, the construction of railroad bridges across deep and rapid rivers where permanent foundations of great strength are necessary, and have to be secured at great depth.

Applications for license for the use of the invention in any part of the United States may be made to H. V. POOR, Esq., Editor of the *American Railroad Journal*, 9 Spruce street; or for contracts for pile driving, or licenses as above to

CHARLES PONTEZ,
March 25th, 1854. New York.

Notice to Contractors.

PACIFIC RAILROAD OF MISSOURI.

SEALED proposals will be received by the undersigned, at their office in the city of St. Louis, until six o'clock, P. M., of the 15th day of May next, for the Grading, Masonry, etc., of the first division of the South-west Branch of the Pacific Railroad, extending from Franklin Depot, the present terminus of the road, some 40 miles West of St. Louis, to the crossing of the Gascenade River, a distance of about 78 miles. The line will be divided into sections of about one mile each, and proposals may be made for one or more sections. The line, plans, profiles, specifications, form of contract, etc., will be ready for inspection on and after the first day of May next. The work to be let is quite heavy, situated in a healthy country, and is easy of access.

The undersigned reserve to themselves to reject all proposals that are not satisfactory.

A. S. DIVEN & CO.

March 24th, 1854.

Notice to Capitalists.

THE GREENVILLE AND COLUMBIA RAILROAD COMPANY

Now offers for sale their Coupon Bonds, redeemable in ten years, bearing interest at seven per cent, per annum, payable semi-annually, secured by mortgage of the entire Road, being the first lien upon it.

For a full understanding of the purposes, value of the property, and prospects of the Company, the following statement is made. It is proposed to issue Coupon Bonds, to the amount of three hundred thousand dollars which with those already issued will make the Bound debt $800,000. The mortgage of the Road bearing date the eighteenth instant, is to cover these Bonds, as well those *issued*, as those *to be issued*, to the amount of $800,000, and no more.

The Road was finished on the 9th December last, is well equipped, and in full and succesful operation. The entire length of the Road, including its Branches, is 164 miles, and cost as follows:

Surveying and Engineering,	$ 66,881 34	
Right of way,	10,441 89	
Graduation,	474,787 69	
Masonry,	828,50 00	
Trestle Bridging,	88,851 69	
Broad River Bridge,	87,571 33	
Saluda Lower Bridge,	6,530 78	
Saluda Upper Bridge,	8,416 48	
Timber for Tracks,	158,181 23	
Iron Rails,	575,235 59	
Spikes and Chairs,	50,891 30	
Superstructure and Track Laying,	94,921 42	
		$1,604,560 74
Real Estate,	$ 22,754 90	
Depots and Water Stations,	44,745 52	
Workshop Building,	17,125 54	
Machinery for Workshop,	16,702 19	
		101,328 15
Locomotive Engines,	$119,176 48	
Passenger and Freight Cars,	130,000 00	249,176 48
		$1,955,065 37
Accounts for Materials, Work, &c., entering into construction, not yet fully ascertained, but supposed to be about,		100,000 00
		2,055,065 37
Capital Stock paid in,	$1,100,029 49	
Assessment on Stock paid in,	131,937 26	
	$1,231,966 75	

The Earnings of the Road for the last three months in an unfinished condition were as follows:

October—From Freight,	$12,761 13	
From Passsengers	8,321 17	
From Mail,	700 00	
		$21,782 30
November—From Freight,	$ 9,764 41	
From Passeng's	8,403 35	
From Mail,	800 00	
		$18,967 76
December—From Freight,	$12,205 26	
From Passeng's	9,034 00	
From Mail,	900 00	
		$22,139 26
For three Months,		$62,889 32

The whole expenses of the Road, it is believed, will not exceed $11,000 per month, or 50 per cent, on the earnings. the Road, for the greater part, is well constructed—of good materiel and heavy iron, and could not now be made and furnished as it is for less than $3,000,000.

By order of the Directors,

THOMAS C. PERRIN, *President*.

January 18th, 1854.

N. B. The Bonds can be had by applying to Mr. Jacob Cohen, of Charleston; Mr. J. P. Southern, of Columbia, or to me at Abbeville Court House. Bids for these Bonds are requested.

Railroad Iron.

1,300 TONS superior quality Yorkshire rails 56 pounds T pattern can be immediately delivered at New York, Savannah, or New Orleans.

For sale by

NAYLOR & CO.

New York, April 1st, 1854.

Brass Tubes for Locomotive and Marine Boilers.

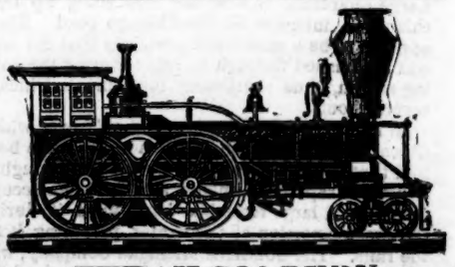
THE undersigned having been appointed Agent for the highly respectable manufacturers Messrs. Allen, Everitt & Son of Birmingham, is prepared to take orders, at fixed prices, for Brass Tubes of all diameters, for Engines.—For further particulars and inspection of patterns, please apply to

JOHN H. HICKS,
March 1854. 90 Beaver str.

Notice to Contractors.

Proposals will be received for all the heavy work on the Blue Ridge Rail Road, South Carolina; Blue Ridge Rail Road, Georgia: Tennessee River Rail Road, North Carolina; Knoxville and Charleston Rail Road Tennessee. The above lines of rail-way are consolidated and under the management of one Company, Extending from Anderson South Carolina, via Clayton, Georgia, Franklin North Carolina, to Knoxville Tennessee, a distance of 194 miles. That part of the road from Anderson South Carolina, to the Turniptop Mountain, a distance of 40 miles is principally earth excavation, of about equal quantities of cut and fill, with several bridges. From the Turniptop Mountain to the Rabun Gap, a distance of 24 miles, the work is very heavy, there being on the line one tunnel of 5800 feet, one of 1400 feet, and one of 400 feet in length; a suspension bridge across the Chatnga River 500 feet long, with some very heavy earth and rock cuts. The rock in the Tunnels is gneiss stratified. From the Rabun Gap to twenty miles below Franklin, a distance of 50 miles, the line follows down the Tennessee River; the class of work is principally side hill excavation, some of which is rock; their will also be several bridges. From the point 20 miles below Franklin to Hardens, a distance of 35 miles, the line follows the Tennessee River the entire distance, causing heavy side rock excavations. On this portion of the line will be several expensive bridges, and a tunnel of about 1000 feet. From Hardens to Knoxville, a distance of 45 miles, the line follows the river about eight miles, then leaves it, running across the Chilhona mountains almost a north line to Knoxville; this portion of the road is heavy work, with about equal quantities of cut and fill, an expensive bridge 1000 feet long and 45 feet high, crossing the Holston River at Knoxville. The character of the rock from Knoxville to Hardens is limestone, and from Hardens to Franklin gneiss rock stratified, and from Franklin to Anderson, stratified sand stone and gneiss rock. The character of the earth is sandy and clay loam. The line for the whole distance runs through high table lands, well settled, remarkable for its health, good water and ample resources for subsistence. The above line of railway offers great inducements to experienced contractors. The undersigned will be prepared to receive proposals and enter into contracts for the graduation, bridging, tunneling and masonry for the heavy portion of the line, from and after the 1st day of May next, at Knoxville Tennessee, Franklin North Carolina, and Pendleton South Carolina, and will continue at such places, until the same is under contract. Profiles and maps of approximate location can be seen at each of the above places after the 1st day of May. Proposals are asked with cash payments, also eighty per cent cash and twenty per cent in the Capital Stocks or Bonds of the Company. All communications prior to may 1st must be addressed at Pendleton South Carolina.

4,13 ANSON BANGS & Co.



ZERAH COLBURN,

CIVIL AND MECHANICAL ENGINEER.

OFFERS his services to Railroad Companies and others, in designing and constructing Locomotive Engines of superior adaptation and efficiency.

Refers to CHAS. MINOT, Supt. N. Y. and Erie Railroad; WM. RAYMOND LEE, Pres't, Ogdensburg railroad; G. W. WHISTLER, Esq., Vice Pres't. New Haven railroad; ROGERS, KETCHUM & GROSVENOR, Paterson, N. J., O. M. HYDE, Esq., Detroit.

M. W. BALDWIN & CO., Engineers,

Broad and Hamilton streets, Philadelphia,

WOULD call the attention of Railroad Managers, and those interested in Railroad Property, to their SYSTEM OF LOCOMOTIVE ENGINES *in which they are adapted to the particular business for which they may be required;* by the use of one, two, three or four pair of driving wheels; and the use of the whole, or so much of the weight as may be desirable for adhesion; and in accommodating them to the grades, curves, strength of superstructure and rail and work to be done.—By these means the maximum useful effect of the power is secured with the least expense for attendance, cost of fuel and repairs to Road and Engine. With these objects in view and as the result of twenty-three years practical experience in the business by our senior Partner we manufacture *Five different kinds of Engines* and several classes or sizes of each kind.

Particular attention paid to the *strength of the machine* in the *plan and workmanship of all the details.* Our long experience and opportunities of obtaining information, enables us to offer these engines with the assurance that in efficiency, economy and durability they will compare favorably with those of any other kind in use.

We also furnish to order, Wheels, Axles, Bowling Tire (to fit centres without boring), Composition Castings for Bearings; every description of Copper Sheet Iron and Boiler work; and every article appertaining to the repair or renewal of Locomotive Engines.

M. W. BALDWIN. MATTHEW BAIRD.

C. Floyd-Jones.,

Division Engineer 3d and 12th Divisions.
ILLINOIS CENTRAL RAILROAD.
Vandalia, Ill.

Boiler and Tank Rivets, Nuts and Washers;

All Sizes of

Bolts and Bolt Ends

for Sale by
BRIDGES & BROTHER,
64 Courtland st., N. Y.

To Railroad and Canal Co.'s, Contractors, &c.

THE undersigned would direct the attention of Chief Engineers and Contractors to the facilities they possess for supplying them with laborers, mechanics, &c. of any description, and also to inform them that they forward such men to whatever destination they may be required.

Companies or Contractors desirous o frecciving steady and industrious men, will be promptly supplied at the shortest possible notice.

JOHN J. HELLING & CO.
No. 85 Greenwich street, New York.

New York and Erie R. R.

PASSENGER TRAINS
leave Pier foot of Duane street, as follows, viz:—

BUFFALO EXPRESS, at 7 a. m. for Buffalo direct, over the N. Y. & E. R. R., and the B. & N. Y. City R. R., without change of baggage or cars.

MAIL, at 8¼ a. m. for Dunkirk and Buffalo, and intermediate stations. This train remains over night at Elmira, and proceeds the next morning.

WAY EXPRESS, at 12½ p. m. for Dunkirk, and intermediate stations.

ACCOMMODATION, at 3 p. m. for Delaware and intermediate stations.

NEWBURG EXPRESS, at 4 p. m., for Newburg.

WAY PASSENGER, at 4 p. m., for Piermont and intermediate stations.

NIGHT EXPRESS, at 5 p. m. for Dunkirk and Buffalo.

On Sundays only one Express Train—at 5 p.m.

These Express Trains connect at Dunkirk with the Lake Shore Railroad for Cleveland, Cincinnati, Toledo, Detroit, Chicago, etc.

CHAS. MINOT, Sup't.

Railroad Iron.

2000 TONS Railroad Iron, weighing about 59 lbs. per yard, "Erie" pattern of G L and "Crawshay" manufacture, now on the way from the shipping ports in Great Britain to this port, for sale by

P. CHOUTEAU, Jr., SANFORD & CO.,
December 4, 1852. No. 51 New street.

Duggan's ork on Bridges.

SPECIMENS OF THE

STONE, IRON AND WOOD BRIDGES,

VIADUCTS, Tunnels, Culverts, etc., of the United States Railroads; illustrated by a series of drawings, from actual measurement of the works; including plans, sections, elevations, and details of each structure, and an appendix, illustrative of the art of bridge building, as at present practiced in Europe.

Illustrated With Numerous Accurately Engraved Drawings.

15 Numbers, 75 Cents, each.

***A few sets of the above work, may be had by applying to the subscriber.

JOHN WILEY, 167 Broadway.

Passenger Cars for Sale.

TWO first class Passenger Cars, built by one of the best car builders in the country, for the Baltimore and Ohio Railroad.

The above presents a rare opportunity to any Railroad Company wishing first class cars for immediate use.

They will be sold at a bargain for cash or good paper. Enquire at the office of Bridges & Brothers, 64 Courtland Street.

New York, Feb. 21st, 1854.

Railroad Letting.

PROPOSALS will be received by the undersigned at the Engineer's Office, Dover, Delaware, until March 14th, inclusive, for the Graduation, Masonry and Superstructure of the DELAWARE RAILROAD, extending frym the New Castle and Frenchtown Railroad to Seaford, a distance of 70 miles, through a healthy region, and convenient to procure hands and supplies.

The work will be divided into sections of about 4 miles each.

Maps, profiles, and specifications will be ready for the examination of contractors, after the 1st of March.

Bidders personally unknown to the undersigned, will be expected to produce satisfactory evidence of their responsibility.

D. H. KENNEDY,
feb.18-tm14 Resident Engineer.

Railroad Iron.

THE Subscribers are at all times prepared to enter into contracts for Railroad Iron, of Messrs. Guest & Co., or other leading manufacturers' make, delivered free on board vessels in England or in this country.

BOORMAN, JOHNSTON & CO.,
Sept. 7. 90 Broadway, New York.

Notice to Contractors.

Office of the Milwaukee and Horicon R. R. Co.
Milwaukee, Wis., March 15th, 1854.

PROPOSALS will be received at this office till the first day of May next for the construction of the second division of the Milwaukee and Horicon Railroad, from Horicon to Berlin a distance of forty-two miles or sections thereof.

Maps, profiles and specifications will be ready for the examination of bidders on and after the tenth day of April next.

JOHN B. SMITH,
Pres't M. & H. R. R. Co.

To Civil Engineers and Surveyors.

TRANSITS, Level and Surveyors Compasses Manufactured on the most improved principle and of the Best Quality by THOMAS HUNT,
No. 53 Fulton Street,
1y10* *New York.*

OFFICE OF THE CLEVDLAND AND TOLEDO RAILROAD CO.—No. 18 William Street—New York, 15th March, 1854.—DIVIDEND.—A semi-annual Dividend of 5 per cent. on the capital stock of this company, has this day been declared, payable in cash, at the office of the company, on and after the 5th April next. Certificates of stock in either of the late companies, (Junction, or Toledo, Norwalk and Cleveland,) will be required to be exchanged for certificates of this company, before dividends are paid. The transfer books will be closed from the 25th inst., to the 5th April.

By order of the Board of Directors,
E. B. LITCHFIELD,
mh.17 1m. Treasurer.

Railroad Iron Via Quebec.

JOHN ANDERSON & CO.

COMMISSION MERCHANTS,
SHIPPING AGENTS AND BROKERS,

Quebec and Montreal.

PARTICULAR attention given to the Transhipment of Iron, &c., in Transitu for the Western Lake Ports, and to the Shipment of Rails in Great Britain.

Quebec, Dec. 2, 1853.

Notice to Contractors.

EUROPEAN & NORTH AMERICAN RAILWAY
NEW BRUNSWICK.

PROPOSALS will be received by the undersigned at his office, Princess street, St. John, N. B., up to the 5th day of April 1854, for the entire construction of that portion of the Eastern Division of the above Railway extending from the crossing of the Road from Schediac to Dorchester to the Bend of the Petitcodiac River being a distance of about twelve miles, comprising the Grubbing, Grading, Masonry, Bridging, and the Ballasting and Laying of the permanent Road.

The work will be divided into two sections which being adjacent to others to be proceeded with on their completion, is well worthy the attention of Contractors.

Proposals may be made for one or both sections and with or without the permanent Road and Ballasting.

Plans and Specifications will be ready for the inspection of bidders on and after the 5th day of March at the above office where all other necessary information may be obtained.

W. E. ROSE.

St. John, N. B., 27th Feb'y 1854.

Railroad Companies and Contractors,

WANTING first rate German or Irish laborers for railroads and canal work, or mechanics of any kind, will find the undersigned a first rate office to give their orders to, as thousands of emigrants apply to them every season for employment.

Satisfactory reference will be given to well known companies and contractors, and men are forwarded to any part of the Union.

MORRIS & COHNERT,
European, American Employment Office,
287 Broadway, corner Reade-st.
3t Under the Irving House, New-York.

THE

New Yorker Handels-Zeitung

A GERMAN Commercial Paper, containing Prices Current, Market Reports, Exchange and Stock Rates, Shipping List and Correspondences from all parts of the world, appears twice a week in two separate editions, viz: one for home circulation, published each Wednesday and Saturday morning; the other for circulation in Europe,—the only German Paper published in the United States admitted to the German States—appears before the departure of each mail steamer for Europe. Terms:—The paper, per annum, at New York, $5, for Germany, ful Postage included, $11, and for all oter parts of Europe, the U. S. Postage inclus., $8. Advertisements taken at liberal terms.

To Contractors.

PACIFIC RAILROAD OF MISSOURI,

THIRD AND FOURTH DIVISIONS.

IT is intended to make contract for the third divisions of this road, (extending from the Missouri river at Jefferson City, passing near Georgetown and Warrensburgh, to the Missouri river near Independence, about 160 miles,) so soon after the first of May next, as satisfactory proposals shall be made.

Contract will be made for the whole now offered, or such parts as particular contractors may select in form and quantity to suit the interests of the company. Proposals are asked for by the cubic yard, with cash payments; but contractors may, if they desire, accompany their offer with proposals for two thirds cash and one third in county and railroad mortgage bonds or other securities.

Profiles and maps of approximate location can be seen after first of April next at Pacific Railroad Office, in St. Louis, and any information will be given on application to the Engineer.

The first division of this road is now in operation; the second division to Jefferson City under present course of construction.

The third and fourth divisions now offered pass over a high, rolling mixed prairie and timbered country, and for healthfulness and supply of provisions will compare favorably with any part o the west. THOS. ALLEN, Pres.

THOS. S. O'SULLIVAN, Chief Eng.

Pacific R.R. Office, St. Louis, Feb. 1854.

Railroad Iron.

1250 Tons Erie Pattern Guest and Co's make, weighing 57½ lbs. per yard, to be shipped from Wales in July and August, for this port—for sale by

BOORMAN, JOHNSTON & CO.,
60 Broadway, New York.

June 9, 1853.

Railroad Iron.

THE "Montour Iron Company" is prepared to execute orders for Rails of the usual patterns and weights, and of any required length not exceeding 30 feet per rail. Apply to

THOS. CHAMBERS, President,

September, 1850.

Railroad Iron.

THE Undersigned, Agents for the Manufacturers, are prepared to contract to deliver free on board at shipping ports in England, or at ports of discharge in the United States, Rails of superior quality, and of such weight or pattern as may be required.

VOSE, PERKINS & CO.,
9 South William St.

New York, June 1, 1851.

Railroad Car Works.

THE Undersigned are prepared to manufacture for Railroad Companies, Passenger, Baggage, Cattle, Freight, Gravel and Hand Cars, also Baggage Barrows and Freight Trucks.

F. HUNGERFORD & CO.

Maysville, Ky., Sept. 29, 1853.

Stuart, Serrell & Co.,

CIVIL ENGINEERS,
Rooms 22, 24, 26 & 27,
157 Broadway, New York.

CHARLES B. STUART, DANIEL MARSH, EDWARD W. SERRELL, SAMUEL MCELROY.

Railroad Iron.

3000 TONS superior quality, delivery from April forward, with 5 to 600 tons per month, for sale by

NAYLOR & CO.,
99 & 101 John street.

12tf

Railroad Iron.

5,000 TONS T RAILS, about one-half weighing 59 lbs. per yard and the remainder 56 lbs. per yard now in bond and for sale by

JOHN H. HICKS,
90 Beaver street.

2d *Feb'y.*

South-Western Car Shops, Madison, Indiana.

THE subscriber is prepared to execute orders at short notice, for all kinds of Passenger, Freight and other descriptions of Railroad Cars.

Work delivered at any point accessible by railroad, or by the Ohio and Mississippi rivers.

Facilities for transportation, enable the subscriber to afford peculiar advantages to Companies requiring work delivered in the South and West.

W. CLOUGH.

Refer to

JNO. BROUGH, Esq. WINSLOW, LANIER & CO.

feb.18. 1m.

To Railroad Engineers and Contractors.

WANTED, a corps of efficient Engineers and Contractors, for the construction of a Railroad in one of the Southern States. Apply to

DUFF GREEN.

New York, Feb. 14th, 1854.

Ontario, Simcoe & Huron R.R. CANADA.

THIS road opened in May last to Lake Simcoe is expected to be completed to the Georgian Bay, Lake Huron a distance of 96 miles in June next where it will form the shortest and most agreeable route to the North Western States to Lake Michigan and to the Mineral Regions of Lake Superior.

At present the Passenger Trains leave Toronto for Barrie (64 miles) daily at 8 a.m. and 3. 30 p.m., returning the same day—On the opening of the navigation a Steamer will ply on Lake Simcoe in connexion with the Trains and will convey passengers through that Lake and Lake Conchiching to Orilia whence a short portage of eighteen miles will take them to the waters of Lake Huron to the Steamer (Kaloolah) which runs to the Sault St. Marie and intermediate ports forming the most expeditious and agreeable route to the Mineral Regions of Lakes Huron and Superior.

Arrangements will be made on the completion of the road to the Georgian Bay for a line of first class Steamers to extend their trips to the ports on Lake Michigan.

ALFRED BRUNEL,
Superintendent.

To Locomotive Engine Builders and Engineers.

THE Proprietors offer for rent for a term of years, with immediate possession, the splendid property, known as the BELLEVILLE IRON WORKS, situated on the Mississippi, directly opposite the City of New Orleans, and within 300 feet of the River, with which it is connected by fine wharves and landings.

The buildings are of brick, with slated roofs, and were erected in 1848 at a very heavy expense; are of a most substantial and durable character and admirably fitted for a Foundry and Machine Shops, or almost any mechanical business. They now contain a new and powerful Engine and Boiler and sufficient machinery, say, planing machines—lathes—boring machines, blacksmith's tools, &c., &c., to employ 100 mechanics, and could be put in working order in a few days. The Buildings cover a lot 300 feet square and are amply large to receive the necessary machinery for the use of 800 to 1000 workmen.

The terminus and depot of the New Orleans, Opelousas and Great Western Railroad is situated about 300 yards from the above property, which could be availed of to great advantage for the manufacture of Locomotives and Railroad work, generally as well as Steam Engines, Sugar Mills, and other descriptions of Machinery.

There are no Shops in New Orleans for the manufacture of Railroad Machinery, and as the Railroad Companies now organized in that city contemplate the construction of over 1000 miles of road,—a large part of which is already under contract,—the property now offered for lease offers a most eligible opportunity for parties desiring to contract to furnish the Engines and Machinery,—for those roads. Responsible contractors with their works on the spot would have an advantage over Northern Workshops in contracting for the Work of the Railroads terminating in New Orleans.

The Establishment and prospect of remunerating work to be secured immediately are worthy the attention of manufacturers and Engineers generally.

Applications from responsible parties will be promptly attended to, and to satisfactory parties the proprietors of the Works can offer favorable terms and arrangements.

Letters may be addressed to

R. B. SUMNER,
No. 61 Camp Street,
New Orleans;

and further information may be had by applying to Messrs. BARSTOW & POPE, Pine Street, New York.

Railroad Spikes, Boiler Rivets, etc.

THE Subscribers, Agents for the sale of James S. Spencer's, Jr., Railroad and Boat Spikes, Boiler Rivets, and Wrought Iron Chairs for Railroads, made at his Works near this city, will execute all orders with promptness, despatch, and of the best quality.

ALSO IMPORTERS of English refined and Merchant bar Iron; Extra refined Car and Locomotive Axles (from 3½ to 6½ inches in diameter); B. O. Locomotive Tire (welded by Baldwin). Also, supply Boiler and Flue Iron cut to pattern or otherwise.—Spring, Shear, and Cast Steel, etc., etc., etc.

T. & E. GEORGE.

Philadelphia, November 14, 1850.

Railroad Iron.

THE UNDERSIGNED, HAVING made arrangements abroad, are prepared to contract for the delivery of Foreign rails, of approved brands upon the most favorable terms.

They will also make contracts for American rails, made at their Trenton works, from Andover Iron, in whole or in part, as may be agreed upon.

They are prepared to furnish Telegraph, Spring and Market Wire; Braziers and Wire Rods; Rivets and Merchant Bars to order, all made exclusively from Andover Iron. The attention of parties who require iron of the *very best* quality for special purposes, is respectfully invited.

COOPER & HEWITT,
17 Burling Slip, New York.

February 15, 1850.

SHANAHAN & LOEBER,

181 William-st,
(1st floor-Up Stairs,)
NEW-YORK.

MANUFACTURERS OF

THEODOLITES, TRANSITS, LEVELS,
Surveyors' Compasses, Drawing Instruments,
Chains, Scales, Levelling Rods, &c. 1y10

Notice to Contractors.

MEMPHIS & OHIO RAILROAD.

SEALED proposals will be received at the office of the Memphis and Ohio Railroad Company, at Memphis, Tenn., until the 15th day of April next, for the grubbing, clearing, gradation, and masonry of the first 65 miles, from Memphis to Cherryville.

Contractors must give the most undoubted security for the completion of the work at the time, and in the manner specified; and contracts will be let in sections, or for the entire work, as may be deemed best by the Directors.

The Directory reserve the right of rejecting all bids, should none prove satisfactory; and it is desirable that all propositions should be submitted, with the view of preparing the whole work for the iron as soon as possible. Bids of that character and otherwise equally favorable, will have preference.

Maps, plans and specifications may be seen at the office of the company, after the first of April.

E. PEABODY,
Engineer in charge.

To Contractors.

SEALED PROPOSALS will be received at the office of the undersigned, in the city of St. Louis, until Thursday, March 30th inst., for the Grading and Masonry on the ST. LOUIS & IRON MOUNTAIN RAILROAD, extending from St. Louis to the Pilot Knob Mountain, a distance of 87 miles, (except sections Nos. 1, 2, 3, 4 and 6.)

Plans and profiles will be ready for inspection one week previous to the letting.

This line is located through a remarkably healthy region of country. The work to be let embraces a tunnel through solid rock, heavy earth and rock cuttings, and various descriptions of masonry. Payments monthly in cash.

Further information may be obtained on application to either of the undersigned, or to the Engineers at the office of the St. Louis and Iron Mountain Railroad Company in St. Louis.

WM. M. WATTS,
Carlisle, Pennsylvania.
CHAS. N. WATTS,
St. Louis, Missouri,
W. MILNOR ROBERTS.
Pittsburgh, Pennsylv.

St. Louis, March 2, 1854.

Knox & Shain,

MANUFACTURERS OF
LEVELS, TRANSITS AND SURVEYING COMPASSES.
No 72 Dock st. first door south of Walnut, west side
PHILADELPHIA.

First Premium awarded by the Franklin Institute.

Important to Railway Co's.

A GREAT improvement has recently been perfected in the manufacture of Dumping Gravel Cars by which the cost is materially lessened and the strength and durability much increased.

We have secured the right to manufacture these improved Cars and can supply them at prices ten per cent. lower than the ordinary kind.

Orders directed to the Hamilton Car Co., Hamilton, Ohio, will receive prompt attention.

H. SAWYER

(of the late firm of SAWYER & HOBBY),
Manufacturer of Transits and Levels,

HAS removed to Union Place near Warburton Av., Yonkers, N. Y.